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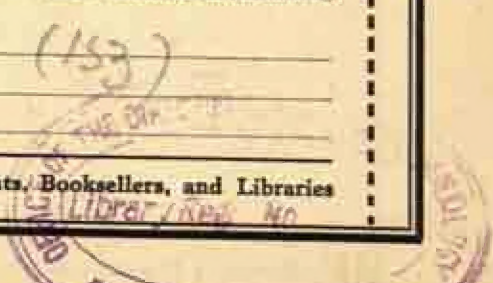
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Antiquity

A Quarterly Review of Archaeology

VOL. VII No. 25

MARCH 1933

Editorial Notes

PLANNING is naturally repugnant to many people, in the realm of action as well as of thought (assuming such realms to exist and to be separable). It is therefore not altogether surprising that there should still be no adequate map of the Roman Empire, none indeed so informative as the graphic representation of it compiled in the 6th century and now in the National Library at Vienna. The reason is not far to seek; there is a great gulf fixed between the historian and the cartographer. The historian deals with the written word, which is both the subject matter of his researches and the vehicle that conveys his discoveries to the world at large. He resides as a rule in Universities and has little or no contact with the makers of maps. Cartographers, on the other hand, are paid to produce maps for the use of soldiers, motorists, hikers, and others who use them to find their way about. The technique of map-production is a closed and uncut book to most historians; and the realm of history is one that the cartographer seldom has the time or even the desire to explore. Between the two professions, however, there is of course no antagonism; there is merely lack of contact, and perhaps of any recognition that such contact might be mutually profitable.

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It was with some knowledge of these facts that the present writer proposed in 1928 the compilation, by international collaboration, of a

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Map of the Roman Empire on a scale of 1 : 1,000,000 (about 16 miles to the inch). The basis for the publication of such a map existed in the shape of the International Map of the World on the same scale, though it is significant of the gulf referred to above that no one of the historians and archaeologists now compiling this (Roman) map had ever heard of the International Map. (For this state of affairs the cartographers must surely accept some of the responsibility). So far as the area of the Roman Empire is concerned the International $\frac{1}{M}$ map is already available, only a few of the 52 sheets (and those not important ones) still remaining unpublished.



The proposal met with a good response, especially in Italy; and as the outcome of further conferences a definite programme of work was adopted. The organization was at first in the hands of the International Geographical Union, at whose Congress in Cambridge the proposal was made. In 1931, however, the scheme was entrusted to the Central Bureau of the International $\frac{1}{M}$ map, whose headquarters are located at Southampton, at the Ordnance Survey of Great Britain. In 1932 the President of the Bureau, Brigadier Winterbotham, received an invitation from the Italian Government to attend a conference of all those who had hitherto participated in the scheme. The conference took place in Rome in November last and was generally agreed to be a great success.



Representatives of Italy, Great Britain, France, Germany, Spain and Portugal were present and representatives of other countries invited were only prevented from attending by reasons of a professional or geographical character. At the formal meetings the practical difficulties encountered by the compilers of the map were pooled and discussed, and the suggestions made were voted upon and adopted, either unanimously or (in a few minor instances) by a majority vote. There was one matter which was agreed upon without discussion and with unanimous enthusiasm, and that was the character of the welcome extended to the conference by the Italian Government. Everyone conspired to make the visit both enjoyable and profitable.

EDITORIAL NOTES

Excursions were organized to the principal archaeological sites—in Rome itself, at Ostia and at Pompeii and Herculaneum, and it was agreed by all members of the conference that Italy is now an archaeologists' paradise.

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Specimens of the seven sheets of the map already printed were presented; these will now be published and put on sale at an early date. (The maps can be obtained from official agents in each country, the agent in Great Britain being Mr Edward Stanford, Long Acre, London, W.C. 1). After the conference one of the British representatives visited Vienna, Budapest and Basel and obtained the collaboration of archaeologists and historians in Austria, Hungary and Switzerland. It should further be stated that the Egyptian Government is actively cooperating and hopes shortly to produce a sheet of the map. The scheme has therefore passed from the realm of abstract ideas to that of a concrete undertaking; it is producing what it was intended to produce; and there is no reason why it should not be carried to a successful conclusion within a reasonable lapse of time, provided it is not thwarted by events in the outside world of affairs.

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A correspondent has asked us to express an opinion about the 'proper function of local societies', using the word 'local' in contrast to 'national'. As a matter of fact he gave one himself with which we are in complete agreement, namely, that it consists in the 'collection and publication of *facts* without attendant masses of verbiage which attempt the collation of all the various aspects of a given problem'. It is not, for instance, necessary to discuss the whole of the British Bronze Age when the discovery of a bronze axe is recorded in the Transactions of the Stilton and South Lincolnshire Natural History and Philosophical Society, to take an imaginary example. Such discussions do not arise on such occasions and should be firmly ruled out by the Editor. They make it more difficult for the reader to discover the facts, which is what he wants. Irrelevant theorizing has been the besetting sin of the local archaeologist from the earliest times, and it is time it stopped.

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Another correspondent suggests a short article on the ethics of publication. 'For instance, should mention be made of any object in a museum which is open to the public without the permission of the finder? It stands to reason, unless the object has been in the museum for a long time, that it should not be photographed nor drawn, but how long should the interval be before mention of it becomes public property? As a rule, objects kept by a State Museum are immediately put on view before the report on them has been issued to the excavator, which seems to me to be rather hard on the latter'. Here is a *practical* problem of ethics for the students and professors of Moral Philosophy to solve. We leave it there, adding however that we cannot undertake to answer, or even acknowledge, letters we may receive on the subject.



We have received many agreeable communications with reference to our 'domestic' notes in the December number and we wish to thank all those who have already so promptly sent their subscriptions for 1933. On several occasions we have pointed out that spontaneous payment is a very great help and we would ask attention to the notice printed below.

The SUBSCRIPTION to ANTIQUITY for 1933 is now DUE. We would remind our Subscribers of the form and envelope inserted in the December number for the purpose of remitting payments. *An early response will be much appreciated as this will save avoidable trouble in having to send out direct reminders.*

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Archaeology as a Science

by DAVID RANDALL-MACIVER

[Dr Randall-MacIver's presidential address on 'The Place of Archaeology as a Science', read to Section H of the British Association at York in 1931, is so important and of such general interest that we sought his permission to print an abstract. The Address, which presents in a very acceptable way the scientific aspects of Archaeology, deserves to be widely read and it is hoped that through our pages it will reach many who would not otherwise see it, even though it has, owing to the length of the complete text, to be given in an abbreviated form. The full address is published in 'The Progress of Science' and also in the Report of the British Association for 1932, pp. 147-68. In NATURE, 24 September, 1932, is a fuller version of the 'Canons of Archaeological Theory' than we have been able to print here, and in its issue for 10 September, is a discussion by a noted authority on some aspects of public policy put forward by Dr Randall-MacIver.—EDITOR.]

ARCHAEOLOGY, like anthropology, is a very young science, and like anthropology it has grown at a most astonishing rate. In the true sense it is scarcely a hundred years old, for its birth may be placed about the middle of the last century, unless we are willing to give a rather artificial value to that false dawn which came with the occupation of Egypt by Napoleon. I should rather prefer to say that it begins just about 1850. Layard was excavating at Nineveh in 1845. Boucher de Perthes published his first work on stone implements in 1841; and the entire theory was made known in England in 1858, in the same year that Darwin and Wallace read 'On the Origin of Species'. Keller's work on lake-dwellings appeared in 1854. Lartet and Christy were doing their chief work in 1861, and Pigorini from 1862 onwards. Schliemann's excavations of Troy began in 1870.

Inasmuch as it is a study of man and his works, archaeology is very closely related to anthropology. What then, we may ask, is the precise character of this alliance? Each deals with man and nothing but man, but from different points of view, so that the two sciences are supplementary to one another. Obviously anthropology is the wider of the two, for it treats not only of man's material works but also of his mental, moral and sociological development. Anthropology

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moreover totally disregards date and time, it simply studies primitive man wherever and whenever he is found ; and primitive man may exist and does exist in the twentieth century A.D. as well as in many thousands of years before Christ ; though he has become rarer in these later days and is not so widely distributed over the earth. Strictly speaking, both civilized and uncivilized man should fall equally within the range of anthropology, which claims to be nothing less than the study of all mankind in every relation. But the latest and more complex developments of civilization which are manifest in our own day have been appropriated by younger and more specialized sciences such as sociology and psychology, so that except for an almost academic distinction it may be said that anthropology confines itself to *primitive* man. It has two distinct branches—the one which examines man simply as an animal, the other which studies him as a *rational* animal. With the first of these, termed physical anthropology, which is really a branch of zoology, our science has very little to do. It may accept and use its results occasionally as a background, but with the same detachment that it shows towards zoology or geology. For the interest of archaeology is solely in those works which can only be produced by man when he has become more or less *sapiens*. Even ethnology, which is physical anthropology as applied to the developed races of man, has only a very slight and limited usefulness for the archaeologist.

From those branches of anthropology, on the other hand, which reveal man in his religious, sociological and cultural relations, and those which study his arts and crafts, archaeology derives the whole of its theoretical structure. How intimately the two subjects are related is shown by such a book as Sollas's *Ancient Hunters*, in which, if it were not for the headings of the chapters, the reader could hardly tell at any given moment whether it is an ancient or a modern people that is being described. Without anthropology, in fact, archaeology would be blind of one eye and very short-sighted of the other. For the only possible subject of archaeology is the *material* output of man, the visible products of his hands, whether these are shown in agriculture, building and other modifications of the surrounding world, or in those manufactures, arts and crafts by which man improves the conditions and amenities of his material existence. What man has been thinking or feeling, or just *why* he did any of the things that we find him doing, archaeology can never directly ascertain. What it discovers is merely the bare fact ; it can never divine the essence of the fact, that which gives it all its meaning and its interest. For the whole interpretation

ARCHAEOLOGY AS A SCIENCE

of the inner meaning and rationale of man's life we are necessarily dependent either on anthropology or on history—that is to say, on records and observations of the thought, habits and behaviour of men who could be actually studied as living and thinking beings. Without the aid of these records archaeology would indeed be a musty science ; but when it employs them it is able inferentially and by analogy to construct the whole of man's story from his earliest beginnings to the present day. And this reconstruction is not only a book, it is an illustrated picture-book, richer than mere anthropology and richer than mere history.

Of the two auxiliary sciences, anthropology and history, the former is generally more useful to us, just because it deals with the primitive, and ancient man is necessarily more or less primitive. Documentary history is very limited in its range ; it gives only a few glimpses of the life of ancient times, and covers only a very small section of the immense period over which archaeology must range. Occasionally, however, it throws a vivid searchlight on times which are especially interesting to us as being comparatively near our own, and usefully supplements our anthropological knowledge by information as to what civilized people, as distinct from savages, thought, felt, and said. Its principal and indispensable function, however, is that of providing a time-scale, which cannot be obtained from any other source, even though its time-scale only covers a few thousand years. A few thousand years is only a small fraction of the time which is included in archaeology. The material of this science goes back to the Tertiary period in geology, innumerable thousands of years before the first beginnings of writing or the first whisperings of tradition. It begins even earlier than zoological anthropology, for in the Chellean, not to speak of pre-Chellean, flints we have records of man's handiwork which antedate any actually known remains of man himself. For these immeasurably remote periods a very rough and inaccurate time-scale, which is, however, steadily being improved, has been provided by geology. It is not until about 3,500 years before Christ that this clumsy instrument can be replaced by a much finer one derived from inscriptions and documentary evidence. Then comes a stage of overlap when the interaction of historical tradition and archaeological study is extraordinarily fertile. At this stage we are able to build on our most solid foundations, when archaeology synchronizes with written records or with the epics, sagas and genealogies which precede them. This, if we care to make this distinction, is the period of proto-history as

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distinct from pre-history. It is the time which is most familiar to the general public, and naturally the most attractive. For it illustrates the dawn of all those great civilizations, oriental and classical, which enter into the intellectual life and interests of all cultivated people. Egypt, Elam and Sumeria, the Crete of Minos, and the Troy and Mycenae of Homer are some of the subjects of this period.

But archaeology does not end where history begins ; it does not even end when written histories are numerous and fully documented. All through the classical periods of Greece and Rome, and all through the Middle Ages, history needs and receives the greatest assistance from archaeology. Down to at least A.D. 1000 archaeology is needed as much as documentary evidence for reconstructing the life of any people. It is not until written records of every kind are so minute in character and so abundant in quantity as to cover almost the whole field of life that archaeology becomes superfluous. Then gradually it gives way, but does not wholly cease to exist until all 'old things' have been replaced by new and modern things, which is almost the time of our own generation.

The organization of archaeology may be treated under three headings. First there is the collection of the material in the field and the recording of it. Secondly there is the housing, conservation and exhibition of this material in museums. Thirdly there is the comparative study of all such material, and the digesting and dissemination of the results in books of synthesis and popularization. Each of these activities demands separate consideration.

The collection of material in the first instance is due to the work of the explorer. He may either travel through a country observing its visible features and monuments, or he may seek to discover new material by excavating what has been hidden underground, either deliberately in tombs and treasuries or accidentally by the accumulation of sand and soil over the deserted ruins of ancient buildings. At the present moment our chief attention is centred on excavation and our most sensational results are being obtained thereby. Recent excavations in Egypt, Mesopotamia, Greece and India are of vivid interest to every cultivated person. As one who has excavated for a good many years and has had constant opportunities of studying all aspects of the excavator's problems, I have been able to form some very clear ideas as to the policy and general necessities of science in this regard. First there are one or two elementary axioms, which were once generally ignored, but are now so universally recognized that they need only be

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mentioned and emphasized as axioms. The most important of these is that no person who is not qualified by special knowledge and study should ever be allowed to excavate at all. And since individuals are not impartial judges of their own capacity, this comes to mean that no one must excavate unless he is endorsed by a scientific institution or at least by a committee of scientific men. This necessity is explicitly recognized almost everywhere, though I can remember some flagrant instances of the violation of the rule even in these last few years. It is a rule, however, which can admit of no exceptions. The days are long past when the looting of sites for the amusement or personal profit of a private individual could be tolerated, and no government with any pretensions to enlightenment will ever again allow it. But various countries which have only recently arrived at autonomy may need warning in this respect, and it would be well that public opinion should be fully alive to the danger. Powerful interests, both individual and political, are often enrolled against our science, and we may sometimes regret that there is no scientific League of Nations to which we might appeal.

Let us consider what happens and what ought to happen when a museum, a university, or a scientific body of any kind sends out its duly qualified explorer. Both explorer and employers have certain perfectly clear duties to discharge, and I suggest that on one side these are not sufficiently recognized. It is the explorer's business not only to furnish his home museum with collections of valuable specimens, but also to make the most complete study of all the conditions under which they are found and to publish this study in the fullest possible form. But here he is very often fettered by the unthinking or deliberately selfish egotism of his employers. A great deal of pressure is often brought to bear on the explorer to make him not only excavate the most lucrative sites, which may be quite legitimate, but to neglect the less attractive and remunerative parts of his concession. This is so notorious that I need not quote instances. I prefer rather to recall the admirable public spirit shown by a great American institution, which ungrudgingly and uncomplainingly supported its representative through several years of expensive and quite unremunerative trenching which he judged to be necessary. And it is pleasant to relate that this generosity was rewarded by the eventual discovery of prizes which excelled their wildest dreams.

If it is the explorer's duty fully to study and record whatever he finds, it is a duty which is never neglected in these enlightened days by

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any scientist at all worthy of the name. But it is not quite so invariably a part of his creed that the privilege of exploration carries with it the implied promise to publish, and to publish quickly and fully. The record of British archaeologists is very honourable in this respect, and there is hardly any important field-work that has not been published or is not in process of publication. A great deal of credit for this happy state of things must be given to the doyen of British excavators, Sir Flinders Petrie, who has never failed, in spite of every obstacle, to furnish a published account of his field-work within the shortest possible time of its completion. This example and the growing pressure of public opinion have been very effective in Great Britain, but several continental countries have fallen far short of our standard. It is sometimes the fault of the individual, sometimes of the institution. There are some men who direct workmen admirably, but seem to be seized with paralysis at any mention of publication. And there are many institutions which make no provision and take no thought for the publication of their material, once it has been safely hoarded in their exhibition rooms. Now let me be perfectly outspoken on this matter. That explorations should be made and left unpublished is a disaster, and if the explorer or his employers are responsible for this failure it is a crime. Nothing can take the place of publication. Notes, drawings, photographs and plans, however elaborate and careful, are of very limited usefulness except to the man who made them and who can alone interpret them. It is an error even to suppose that a literary executor can take over the material and produce a satisfactory result. If an archaeologist does not bring out his material, or at least fully prepare it for publication, in his own lifetime, a great part of it is irretrievably lost to the world.

This being the case, the institution which obtains a site for excavation ought to guarantee the expenses of a reasonable publication and ought to bind its excavator by contract to publish. I may quote as an example my personal experience with an institution which appreciated its duties fully and exactly. In January of 1907 I accepted a contract with the University of Pennsylvania to conduct excavations in Egypt and northern Sudan. The term was fixed at five years, and the University stipulated that before the lapse of these five years I should have prepared for publication a full report of all the results. In accepting this provision I stipulated on my side that the University should publish every word that I might write and every illustration that I might deem necessary. No obstacles were allowed to stand in

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the way, and the contract was precisely fulfilled on both sides. I consider that such an undertaking ought to be given by every institution that sends its man into the field, and that this should be so fully recognized that the excavator need not even have to propose it.

There is still one more consideration in regard to the exploration of sites which is very little appreciated. The wisdom of one generation, even if it be our own, is inadequate to foresee all possible problems. Therefore, whenever the circumstances allow, a portion of every site should be left unexplored and reserved for future study. The advantages of this are manifest; let me quote only two examples. The results obtained at Pompeii within the last ten years have been so revolutionary that they have put all the old standard books out of date. If this city had been cleared at one sweep when first discovered all this knowledge would have been lost, owing to the imperfections of the methods then in use. The proper technique has only gradually been evolved. On the other hand, the frantic rush to explore all lake-dwellings in the third quarter of the last century barely left Vouga enough material for the studies which he has just completed. Had they been *all* destroyed by the first excavators the mistaken opinions launched seventy years ago would have been stereotyped for ever.

The second aspect of an archaeologist's activities is museum work. Sometimes the same man who has formed a collection in the field will be placed in charge of it in a museum. This is a very happy arrangement and ensures that the most minute and intelligent attention will be given to everything that has been found. More often, however, the museum curator is a person who stays at home, and acts as the recipient and custodian of the collections that are brought to him.

How he treats these collections must be to a great extent determined by the circumstances and the accommodation at his disposal. Our greatest museums in England and on the Continent are in many instances so overcrowded, and so hampered by an excess of concentrated material, that it is useless to lay down ideal rules for them. The only hope for a really rational treatment of them is that they should be broken up into a number of smaller units; this may for the moment be impracticable, but should certainly be borne in mind as the ideal at which any really systematic policy would aim.

In countries like Italy, with its traditional liberality towards science and art, or America, which starts in at a later stage with great resources and no hampering accumulation from past years, a genuinely systematic arrangement is possible. From the point of view of an excavator many

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of the Italian museums are ideally arranged. The results of any given excavation are kept together in a single room, and each tomb and deposit is placed in a separate division of a case, carefully marked off from its neighbours. The effect of this is that a student can go into the museum at Florence or Bologna with the excavator's report in his hand, and study every paragraph with the objects in front of him. Even when the objects have been incompletely published I have been able to make a fairly systematic record of them from the mere contents of the cases thirty years after the work had been done. In the Egyptian department of the Metropolitan Museum at New York the deposits are not so rigidly kept in series—which is, indeed, difficult unless the available space is almost unlimited—but the same ideal has been borne in mind. The exhibition, therefore, can be used as an illustration of the actual excavation. Moreover, New York has gone far beyond any other institution in popularizing its exhibition. Photographs illustrating the stages of the excavation, abundant and detached labels and descriptions of the objects, and *résumés* of periods and styles of work make the collection an illustrated picture-book which has an immediate appeal for the public.

Many of our own museums might follow this example with advantage. A recent Government Commission, as you are aware, has published its reports on the museums in England. Amongst other things it remarks on the discouraging truth that the public does not seem to want museums. The same might be said of many places on the Continent. Now as conditions are at present, I must confess to having a good deal of sneaking sympathy with the public. A few institutions, like the British Museum and South Kensington, as well as a small number of enlightened provincial museums up and down the country, have published admirable handbooks, instituted popular lectures, and encouraged popular demonstrations by expert guides, yet these are only a very small minority. Whether in Great Britain or on the Continent the visitor to a museum, other than a gallery of pictures or sculpture, is merely left to drown in an uncharted sea of unintelligible cases. We can scarcely blame him if he objects to being drowned and rushes out into the fresh air. It is not the public but the management of the museum which is to blame. In America it would be quite untrue to say that the public does not want museums. On any holiday the Metropolitan in New York is crowded to overflowing by thousands of people, rich and poor, educated and uneducated, who show the most intelligent interest.

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In order to popularize museums, however, a totally false start has been made in many places. With the mistaken idea that the ordinary man can appreciate art but cannot appreciate science, a number of institutions have been founded which are called Museums of Art and Science. The title might be allowed if it did not dictate the policy. But the policy has generally been to subordinate science, and presently almost to thrust it out of doors. The local magnate who has bought a few pictures for his own home, together with copies of the Apollo Belvedere and similar works which are supposed to be above criticism, declares to the committee of which he is chairman that the museum must not be filled up with old stones and pots and pans. And in the hope, very often unrealized, of a substantial legacy the committee obsequiously follows his lead. And very probably the director of the museum, who has been chosen for his talent as an art connoisseur, is very content with the policy of his committee. Now as far as the general public is concerned this is a sheer error of psychology. The ordinary man has no training and little aptitude for fine art, but he can understand workmanship, and he is interested in the things which come near either to his daily life, or to a life that he might have led some centuries ago. A well-illustrated and well-explained collection of ethnographical or archaeological objects makes a definite appeal to him, and he responds wonderfully to the romance of ancient history or of primitive life.

This supposed union of science and art is simply hypocritical, and when science has insinuated itself into a collection under the disguise of art it is high time that the disguise should be thrown off. A scientific collection is not made for aesthetic purposes; it need not be ugly, and if capably handled it will not be ugly, but its primary purpose is not aesthetic. The attempt to aestheticize an archaeological collection is constantly being made, and always results in much damage to scientific interests and very little satisfaction to the aesthete. Let us be perfectly clear-sighted and frank about it. In itself archaeology has nothing to do with art—at most it chronicles the *history* of art; which is a very different thing, as every artist knows, from genuine aesthetic appreciation. The art-critics are perfectly justified in protesting, as they constantly protest, against the confusion of art-history with art-criticism. The individual archaeologist may by the grace of heaven chance to be endowed, as a very few men are, with the real gift of aesthetic appreciation. But it is not directly evoked by his work, and there will be little opportunity as a rule for exercising it in the course

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of his work. The immense majority of the objects with which he deals have very slight aesthetic worth; in so far as a man is purely archaeologist aesthetic values do not exist for him. The archaeologist works like a naturalist—it is his business to trace evolution, patterns, migration, and development; and when he is tempted to discourse on aesthetic values his opinions are very seldom worth hearing. Except in very rare instances, therefore, the products of excavation and exploration should be treated as natural history collections, and not as more or less unsuccessful efforts at pure art. And we must remember that archaeology has now happily become a popular subject. The man in the street is greatly interested in it. He delights in the pictures and the brief accounts which are published in the *Illustrated London News*; he rushes to the exhibitions of antiquities excavated at Ur of the Chaldees, or in Egypt, or anywhere else. The reporters of the most up-to-date American newspapers will assure you that archaeology is 'front-page news', and it is printed with two-inch headlines in columns next to the exploits of the gangster and the gunman. This is fame—let us take advantage of it. It would be exceedingly foolish not to welcome this popularity and cultivate it by every possible means. Here is a study which does no harm to anyone, which any intelligent being can share, and which can add immensely to the amenity and happiness of the ordinary man's life.

I have now dealt with two aspects of an archaeologist's work, the collection of material and the exhibition of it in museums. The third is the dissemination of knowledge by means of books. Some of these books must necessarily be technical; others should be addressed less to specialists than to a cultivated public; and a third class ought to be directly and deliberately popular in their aim.

First of all, the original scientific accounts of excavations can hardly be popular works, and need not be. They are written for the professional and make very dry reading. They are not essentially literary in form, and if a writer inserts some chapters of literary character these are only an added grace; they are not essential at this first stage, but belong rather to the second. Lists, plans, schedules, catalogues and indexes are the fabric of which the excavator's reports ought to be composed. Their aim is to give a precise account of every feature of the exploration, and not until this has been done is there any occasion for general theories or estimates of the historical bearing of the discoveries. Books of this stage need be no more than mere chronicles; it is probably best that they should not attempt to be more. An

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excavator need not be a literary man. If he has literary gifts he will have ample opportunity for using them in books of what I would call the second stage in the dissemination of archaeological knowledge.

For if it is the absolute duty of the excavator to produce a perfectly dry, passionless record of his work for the sake of his professional brethren, this is only the first stage in the process of bringing knowledge into general currency. When the seed has been thus gathered and sown it has to be watered and cultivated. This is a task which may be undertaken by the original explorer or by others. Unquestionably the best results are obtained when the explorer himself, if he has any literary ability, undertakes the popularization and exploitation of his own field work. No one else can so exactly estimate the finer values and all the different aspects of the discoveries which he has made. Indeed, any outside person will inevitably miss a great deal, and will probably view many details in a false perspective. Many of our best archaeologists have achieved as much success in semi-popular writing as in exploration; I need only mention Sir Aurel Stein as a conspicuous example.

The writer of general synthetic works is often carried far beyond the possibilities of strictly logical proof. This does not mean that his methods are to be condemned. I fully realize the wisdom of a colleague who said to me many years ago, when we were discussing first principles on the banks of the Nile, 'You must not break archaeology on the syllogism'. It would be pedantry to ignore how much we owe to the poetic and far-seeing imagination of many a great archaeologist, from Schliemann down to some of our own contemporaries. The picturesque prophecy of today may well be the scientific fact of tomorrow. So long as the author keeps his fancies and his facts distinct, he can remain perfectly scientific. But it is his duty to show clearly the grounds of his reasoning; and this leads me to consider somewhat tentatively what are the types of logical reasoning which may be regarded as conditionally or unconditionally valid.

From such a vast and intricate subject I will select for discussion only two of the principal problems of archaeology—namely, the application of a time-scale and the proof of the dissemination of a culture. First, then, as to the time-scale. A philosopher may attach little value to the mere arithmetical count of years, and a student will often work more freely if he thinks in culture periods rather than in centuries. But there is no doubt that the ordinary man demands not only 'facts', but 'figures', and it is a great temptation to supply the

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figures at any cost. A series of culture-periods has been well established, so that there is a reliable system of what is called 'relative chronology' from the earliest Stone Age down to the time of full documentary history. But it is a very different matter when we attempt to translate these culture-periods into centuries and thousands of years. The estimates given by various geologists and palaeontologists for everything behind the last stages of the Ice Age are immensely divergent from one another. I should not venture—it would be quite beyond my capacity—to criticize or discuss them. But when the stage of universal hunting has passed, and mankind has settled down to an agricultural and pastoral existence; when the outlines of sea and land have become fixed in approximately the same forms which we know today, then we feel that prehistory is only a slight extension backward of what is generally recognized as simple history. It is a sketch of the early chapters in the story of empires, nations, and peoples, of whom several are known to us in written history or tradition. We naturally desire to know in terms of years and generations how far back we can trace the doings of the men who are our own ancestors or collateral forbears. Now here we must be clear-sighted enough to accept our inevitable limitations and avoid all sophistries and all claims, however specious, to know the unknowable. We are wholly dependent for our absolute chronology upon the dates recorded or obtained by immediate inference from ancient writings or traditions. The fragmentary relics of Mesopotamian and Egyptian official chronology furnish a time-scale, liable, as you know, to much uncertainty in minor details, but trustworthy in all its main lines. Whenever this time-scale can be applied, it is possible within quite narrow limits of variation to give precise figures as well as facts. Thus we can give a dating in years to all the products of Egyptian civilization back to the beginning of the First Dynasty. And by direct inference we can apply this scale to many other parts of Europe and Asia, as Sir Arthur Evans has so successfully applied it to the dating of Cretan civilization. Indeed, as archaeological discovery proceeds in the coming years we may reasonably hope to arrive at a completely graduated scale of chronological dating in actual years for every part of the ancient world after 3500 B.C. But if it is asked what means we have for establishing a chronological as well as a typological scheme behind 3500 or possibly 4000 B.C., I answer unhesitatingly that we have none, and that unless earlier written records or traditions come to light it is probable that we shall never have any.

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One very crude method of attempting to avoid this impasse is so illogical that I need spend little time in discussing it. Below the strata in which definitely datable objects are found—whether at Knossos, Ur, Susa, Mohenjo-daro or any other very ancient site—there are generally strata of a certain thickness in which other and obviously earlier forms occur. Now it is sometimes suggested, even by skilled explorers in their less discreet moments, that the mere thickness of these undated layers may give an indication of the length of time which it took to form them. And yet a very slight amount of reflection, not to speak of actual experience in the field, will show that this reasoning is as childish as it is simple. I have myself seen in Egypt deposits many feet deep which can nevertheless be proved by well-dated objects at the top and bottom to have been formed within a single century; and I have also seen a concentrated stratum of not more than four feet which contained the products of many centuries closely pressed together. There are innumerable reasons for which the rate of deposit may vary almost indefinitely. To attempt therefore to estimate the rate of deposit in the prehistoric stratum from that which is observed in the historical layers above it is worse than illegitimate, it is sheer fantasy.

In a less crude, but not very different form, the same error appears in the attempt made by several justly admired writers to establish a chronological scale for the typological series preceding the historical in a country like Egypt. The system of sequence-dating based on typology is now familiar to all students. It was established for Egypt by Sir Flinders Petrie, and for Europe in general by Montelius. As a scheme of relative chronology it sometimes creaks a little, but on the whole it works well and has justified itself, though it may need occasional emendation. But the recurring attempts made by one author after another to translate this relative system into an absolute chronology of years have no logical justification whatsoever and only encourage self-deception. The argument is really based on an assumption which can easily be shown to be fallacious. This is the assumption that the rate of progress in civilization is always uniform. If we know the rate of development in types which took place during the First and Second Dynasties and know also from inscriptions the length of these dynasties, then, it is argued, we have a yard-stick which can be applied to the period preceding the First and Second Dynasties. It is as though a policeman, having timed a speeding motor car over a measured mile, and found that it was going at sixty miles an hour, should appear before the magistrate and state that it was evident the defendant had been

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proceeding all day at sixty miles an hour. The falsity of the conception is evident as a mere matter of logic ; but it can also be shown by numerous examples in the well-known periods of medieval and modern history. Would any historian, for instance, seriously maintain that the rate of intellectual and artistic achievement was exactly the same during the Dark Ages as in the Gothic time or the Renaissance? Would anyone venture to argue that the industrial progress of the nineteenth century A.D. was no more rapid than that of the eighteenth, or that material development proceeded at the same rate in the reign of George I as in that of George V? Merely to ask such questions is sufficient. I need not dwell on the long centuries of Byzantine or Chinese immobility, or on the static quality of much actual Egyptian art.

Next we may briefly consider the problem of the dissemination of cultures. This is one of the most interesting and important aspects of archaeological study. In it are involved all questions of the migration and movements of peoples, their commerce and intercourse of all kinds, and the degree and extent of their reciprocal influence upon one another. It is really the cardinal problem of archaeology, irresistibly attractive, and for that very reason offering peculiar temptations to hasty and premature generalization.

Now the foundations of this particular study, in so far as they have been well and truly laid at all, have been laid not by archaeology but by other sciences, those in fact which deal not with man himself but with the conditions necessary to his very existence. Geology, climatology, palaeontology, palaeobotany have been the instruments of that great progress in synthetic theory which I have pointed out as the special achievement of the last thirty or forty years. Those who have worked out the details and the stages of the Ice Age and the rainy periods have shown us that various parts of the world were uninhabitable for a long time. It is obvious, for instance, that man cannot exist under a snow-field, so that it is useless to look for him north of 50 degrees of latitude until the Ice Age is well past. That already reduces our problem to much smaller dimensions, and teaches us to exclude large parts of the world from the possible area of man's earliest evolution. Conversely, large areas which to the modern view seem impossible homes for man are shown to have been eminently suitable for the life of the palaeolithic hunter. The Sahara and the Gobi desert in their present condition cannot maintain the life of man or beast ; but the climatologist shows that there was a not very remote period when they were well-watered regions, covered with grass like the South African

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veldt, and teeming with large game. Thus he explains what otherwise might have remained an ambiguous problem for the archaeologist, the finding of human implements of very early types in these apparently uninhabitable tracts.

The botanist next comes forward to tell us that the food plants on which a settled agricultural life depends can only be found in their wild state in certain closely defined areas. And he shows how changes of climate produce various types of afforestation which necessarily limit the movements and activities of a man who possesses only primitive tools. This type of reasoning has been exceedingly skilfully used, in particular by writers like Peake and Fleure, to restrict the range of choice and to give proportion, scale and limitation to the study of man's origin and movements. I regard this as one of the most solid achievements of recent years.

But when the archaeologist proceeds by purely archaeological methods to fill in the details on a background of which the outlines are thus immutably drawn by the other sciences, he is confronted with innumerable difficulties of method, and the logic of his procedure is not always well studied. In the first place we must necessarily rule out many types of reasoning which are so general and inconclusive that they can never carry any conviction. A little serious reflection must show that we necessarily know so little of the mental equipment of early man that it is often impossible to say what actions and habits are natural to all men as highly developed anthropoids, and what are so peculiar as to be specifically human and characteristic of one or another developed type of man.

To apply logic at all then, we need to find our material in highly specialized products or habits of man. In short, it is only possible to reason convincingly when manufactures or arts and crafts have reached a high point of intricacy.

In contrast to the doubts and uncertainties which beset all reasoning based on the manufactures and products of early man, it is a relief to turn to a field in which unquestionable logical certainty can be achieved. This is when we are able to study man's action in moving and displacing natural products. For when the natural distribution, as known to geologists, of rocks, ores, and other natural products is artificially changed there can be no doubt that man has been at work. The direction of his movements can be traced, the motive of his action can be divined, and even the intensity of his action can be measured. Thus if a certain kind of flint is peculiar to Grand Pressigny in France

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and implements of that flint are found in Switzerland, there can be no doubt that Switzerland is trading with Pressigny. Similarly, if gold combined with antimony is known only to occur in Transylvania, it is a just, though a surprising, inference that the sceptre of a very early Egyptian king, living about 3000 B.C., which shows this unique combination of metals, is made of gold from Transylvania. To take a simple example from nearer home : if a number of stones in the circles of Stonehenge are of a type peculiar to Wales, they must have been transferred from Pembrokeshire to Salisbury Plain by man.

Raw materials, then, are better evidence than manufactures, especially in the earlier stages of man's life. When we are dealing with the works of man, logical processes of real value only begin to be applicable as handicrafts become more complicated and as the arts begin to emerge.

Belgic Cities of Britain

by R. E. M. WHEELER

I. THE BELGAE

WHAT particular gadfly drove the Belgae into Britain in the early years of the first century B.C. is hidden from us. The pestiferous Cimbri may have lent their sting; for although, alone of the Gauls, the Belgae had beaten them off along the Seine valley in 103 B.C., these vagabond Teutons and their friends cannot have added to the amenities of a continental existence. Thereafter, at any rate, Belgic ambition turned easily northwards to the familiar and relatively empty coasts of southeastern Britain. With a combined initiative and deliberation that may be imagined to have reflected their mixed Celtic and Teutonic origin, organized Belgic tribes or tribal contingents began to settle along our shores and to penetrate inland along our rivers. When Caesar arrived in 55 B.C., he found them, he tells us, in occupation of 'the maritime districts'.

Archaeologically, these Belgic pioneers have in some degree been known to us since 1890, when their curious, archaistic burial-urns, cordoned and pedestalled, were identified at Aylesford, on the Medway, by Arthur Evans.¹ But of their dwelling-places, their cities, their exploitation of the countryside, the spasmodic researches of a generation of students have taught us little. Verulamium and Colchester have of course been duly recognized as semi-historic Belgic capitals; but recent archaeology has failed to show that either of them is earlier than the last quarter of the first century B.C. At Hengistbury Head, flanking the natural harbourage of Christchurch in Hampshire, Belgae coasting westwards took their turn, perhaps at an early date, in the use of this convenient promontory. Post-Caesarian waves of Belgic immigration, of the late first century B.C. and early first century A.D., have indeed

¹ For the bibliography of the Belgic settlement of Gaul and Britain, see C. F. C. Hawkes and G. C. Dunning in *Archaeological Journal*, LXXXVII (1930), 150ff.; to which may be added Mrs B. H. Cunington in *Antiquaries Journal*, XII (1932), 27ff., and C. F. C. Hawkes, *Ib.*, 411ff.

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been postulated and localized by archaeologists in the more westerly regions of southern Britain. Ptolemy, in the second century A.D., even calls Bath a Belgic city, though with what implication we cannot say. These secondary phases of the problem do not concern us here. It is the main purpose of the present paper to attempt to throw a little more light upon the Belgae of Caesarian Britain, whose vaguely recorded exploits are the horizon of British history.

II. A BELGIC FRONTIER

In July 1932, workmen digging a trench for a new sewer near St. Albans found a hoard of Roman coins. This occurrence was not in itself remarkable in a district where it is more difficult to avoid than to discover Roman remains. But investigation revealed attendant circumstances which at once gave to the hoard an entirely unusual significance, and that, curiously enough, in relation to the pre-Roman, not the Roman, era.

Unfortunately, the engineer in immediate charge of the work,² though cognizant of the discovery and ready subsequently to provide detailed and useful information, did not at the time see his duty clearly. The coins—'two shovels-full' according to one account; 'over a hundred' according to another—were immediately dispersed, and only the most devious intrigues succeeded, after many days, in eliciting thirty-three of them for inspection. Most of these have now vanished again, but twenty-five of them were photographed before their return to their 'owners' (fig. 6).

The hoard, so far as recovered, is a simple enough matter. It consists of silver denarii, all marked with a distinctive copper stain, and ranges from several worn Republicans to an early Hadrian (A.D. 118-119). The last, though clipped, is almost in mint condition, and sufficiently indicates A.D. 120-130 as the approximate date of deposit.

The remarkable feature of the hoard lies in its situation. The spot (see map, fig. 1) is just over a mile north-northeast of St. Albans Abbey, on the southern side of a lane (Everlasting Lane), and at a point thirty feet west of the St. Albans-Harpenden road, opposite the southwestern end of 'Beech Bottom'. This name is applied to a formidable tree-clad ditch or dyke which occupies the bottom of a valley extending northeastwards from the Harpenden road to the

² It is fair to state that this work was carried out by a non-local firm.

PLATE I

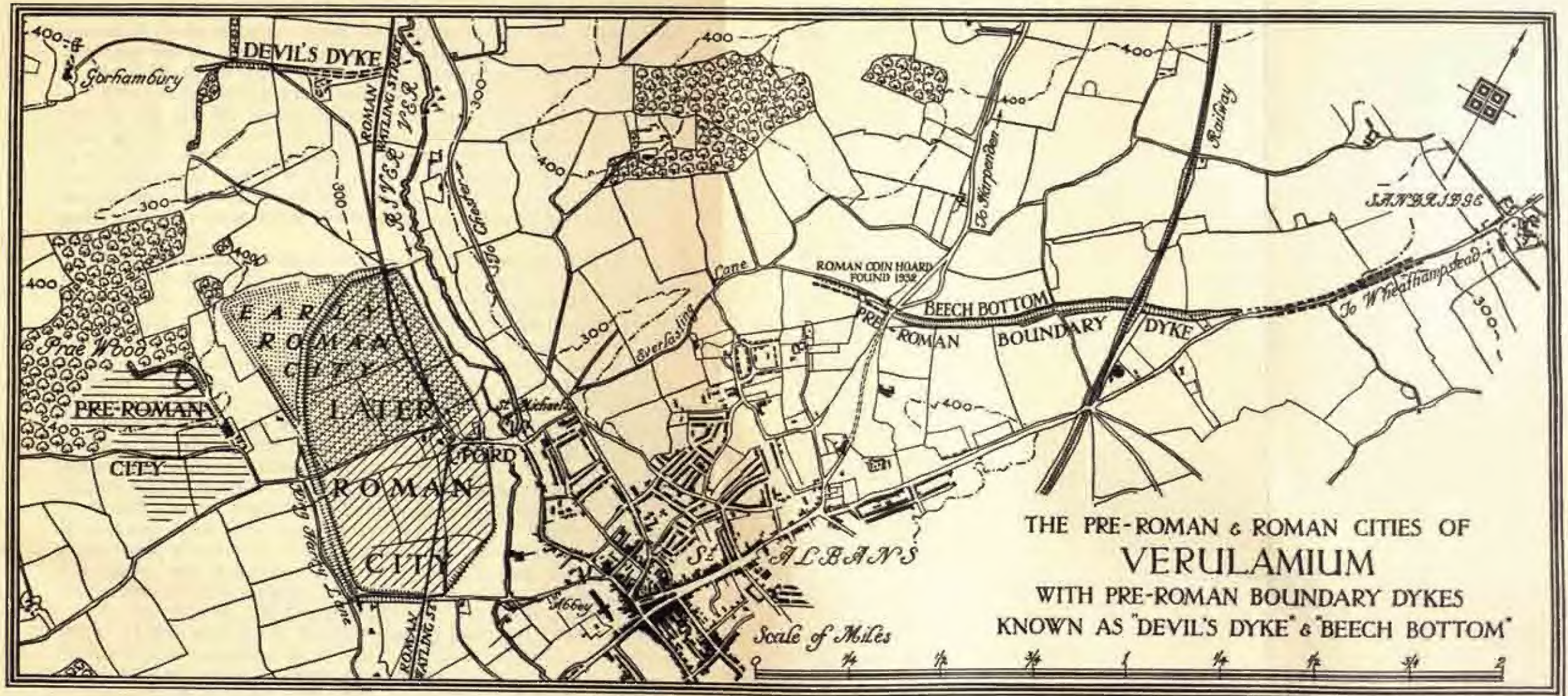


FIG. 1
(Based upon the Ordnance Survey 6-inch maps, Herts XXIV N.W., N.E., and S.E., by permission of the Controller of H.M. Stationery Office.)



Handwritten text, likely a title or description, located in the lower-left corner of the map area. The text is faint and difficult to read, but appears to be organized into several lines.

BELGIC CITIES OF BRITAIN

vicinity of Sandridge. As a recognizable dyke, it is still open for a mile of this distance, and its northeastward continuation is marked by a sunken stretch of the St. Albans-Sandridge road. To the west of the Harpenden road its former line is represented, for at least a quarter of a mile along the valley, by the Everlasting Lane wherein the hoard was found. The scarp and northern bank of the levelled dyke can be traced faintly for that distance along the southern side of the lane.

At its eastern end the lane bends across the actual line of the dyke (see fig. 1), and the sewer, following the lane, here cut through the damp grey filling of the ditch, which had itself been excavated originally in a belt of compact orange gravel. The men were working at carefully measured depths, and it was at a depth of fourteen feet in the grey ditch-filling that the hoard was found. The sewer-trench at this point reached a final depth of seventeen feet, and at that depth was still in the filling.

The significance of these facts is at once apparent. Where best preserved, the Beech Bottom dyke is a hundred feet across and upwards of thirty feet deep (figs. 4 and 7). The hoard cannot have lain far from the centre-line of the dyke, and its depth from the present surface—only fourteen feet—implies that there were already ten feet or more of filling in the bottom of the dyke at this point before the hoard was dropped. In other words, *the dyke would appear to have been partly obliterated before A.D. 120-130. It was at least in existence by that date.*

From this a further inference follows. With its slavish adherence to the contour-line of the valley-bottom, the dyke is entirely foreign in conception to the practice of Roman engineering. True, the Roman Vallum behind Hadrian's Wall scorns command and often drops into lowly and obscure ground; but the abject dependence of the Beech Bottom dyke upon every whim of the local contour is a different matter. It has nothing to do with Roman Britain of the first or second centuries A.D. And, since it is now proved to be not later than that period, we must conclude with certainty that it is earlier. It is pre-Roman.

So far, so good. The next problem is that of the function of the dyke. It was presumably in some sense a boundary. But of what? Which way, in particular, did it face? Here the position and structure of the dyke are neither of them very helpful.

First, as to position. The dyke follows the bottom of the shallow valley with undeviating impartiality; it cannot therefore be attached by contour to one flank rather than to the other. Moreover, geologically it occupies almost exactly a narrow strip of dry valley-gravel

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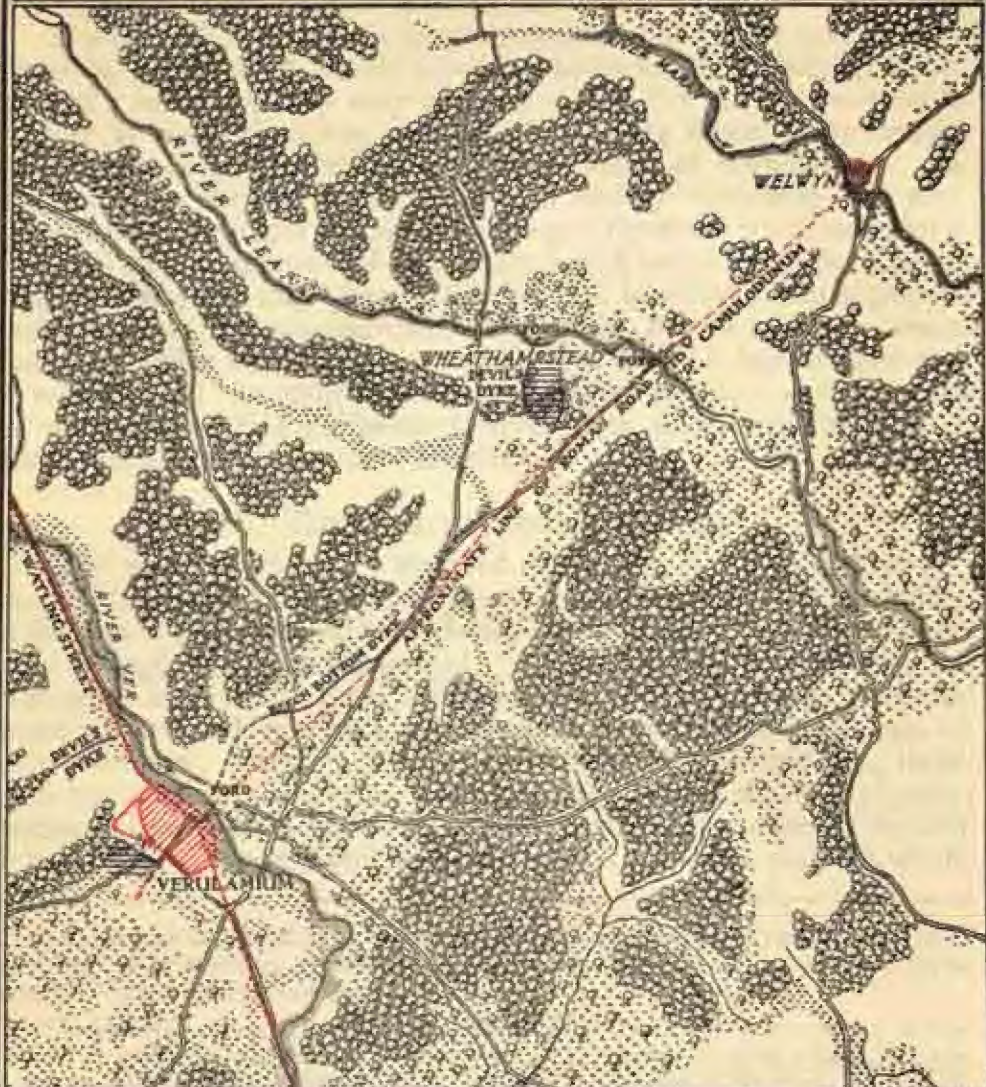
between symmetrical slopes of chalky subsoil with a patchy covering of boulder-clay. Its physiographical environment was therefore equally impartial (see fig. 2), and fails to enlighten the problem. Indeed it may at once be asserted that the coincidence of the dyke with the strip of gravel has no more significance than that both occupy the bottom of the valley.



Secondly, as to structure. When the dyke was originally cut, the soil from it was, at any rate in part, heaped up on both margins, but has largely been removed by the plough. Towards the Harpenden road, the southern bank is the larger, about seven feet high. Towards the Sandridge road, either the two marginal banks are of equal height or the northern is slightly the larger. It is clear that the ditch, not the banks, was the primary object of the constructors. If the relative size of the banks, however, is to be taken as a criterion at all, it may perhaps be said that, on the whole, the more southerly bank was slightly the more important, *i.e.*, the earthwork may, on this ground, be thought to have faced north rather than south.

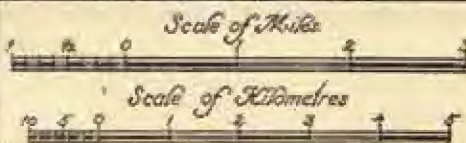
There, for the moment, this problem may be left. Attention may now be diverted to another dyke, the handiwork of the Devil, situated to the west of the river Ver and to the north of the successive prehistoric and Roman cities of Verulamium. At the present time, 160 yards of this dyke are clearly visible close to Mayne's farm; it is fifty feet across—about half the size of the Beech Bottom dyke—and has a low bank on its southern margin. Slight surface-indications hint that it formerly extended eastwards to the water-meadow of the Ver, and a series of nine cuttings in 1932 not only proved its westward extension into Gorhambury park but actually revealed its end in this direction, at the base of the hillside 180 yards west of the lodge gates and 80 yards south of the park-drive (see map, fig. 1). Incidentally a few small sherds of Belgic pottery (forms indeterminate) were found in the filling of the ditch.

Here, then, on both sides of the Ver, are stretches of pre-Roman boundary-dyke, varying in size but similar in construction and, above all, similar in their unusual location. They are both valley-dykes and, so far as can be judged, faced northwards. It is inevitable to associate them with each other: to suppose that the Beech Bottom dyke formerly continued southwestwards down the re-entrant to the river Ver a little above the St. Michael's ford; that the boundary was continued northwestwards for nearly a mile by the marshy river-valley itself; and that it was then (at least in its final form—see below) completed

ST ALBANS AND WHEATHAMPSTEAD HERTS.
 WITH FORMER WOODLANDS RESTORED ON GEOLOGICAL BASIS
 PREHISTORIC WORKS, BLUE : ROMAN WORKS, RED.



-  THICKLY WOODED CLAY LAND
-  LIGHTLY WOODED GRAVELS ETC



-  OPEN CHALK LAND.
-  ALLUVIUM.

FIG. 2

BELGIC CITIES OF BRITAIN

westwards from the river to the former forest by the Devil's Dyke (see fig. 2). The whole scheme is in itself an entirely natural one topographically.³ Considered historically, in relation to the region as a whole, it not only becomes convincing but compels a further series of inferences which demand consideration.

It is at once clear that the frontier-system, so far as we have already traced it, fulfils three closely-related functions. It includes the St. Michael's ford—the only easy crossing of the Ver for a considerable distance in either direction, and the determining factor, therefore, in the location of the prehistoric and Roman cities of Verulamium. Its northern limb, the Devil's Dyke, without unduly 'crowding' the area of settlement, straddles the approach to pre-Roman Verulamium along that brief stretch of open and level valley which later carried the Roman Watling Street and may already have borne a less disciplined highway. And, not least, the frontier-ditch emphasized, for all to see, an open transverse valley which forms a natural line both of demarcation and of traffic across the countryside.⁴ It remains to enquire the reason for the choice of this particular frontier-zone, and it will be seen, I think, that an answer can now be given.

III. THE WHEATHAMPSTEAD OPPIDUM

Five miles northeast of the ford across the Ver at Verulamium, another ford still carries the wayfarer across the rather wider valley of the Lea. This crossing is at Marford, on the eastern outskirts of the large village of Wheathampstead. About a mile downstream, at Waterend, is a second ford, overshadowed by the pleasant Jacobean house where Sarah Jennings, first Duchess of Marlborough, is said to have been born. On the southern brow of the valley, overlooking these fords but nearer to the former, is the rampart of one of the most gigantic earthworks in Great Britain. It is towards this that the Beech Bottom dyke, and the contours which control it, point. To this, also, the whole

³ It is easy to find parallels for the amalgamation of earthwork and river in an ancient boundary. For example, several notable instances along the line of Offa's Dyke have been noted by Dr Cyril Fox.

⁴ Incidentally, the great steep-sided ditch would break the heart of any cattle-raider. It might be possible for a pertinacious cattle-driver to slide a herd of cattle down one side of the Beech Bottom dyke; but, once in the point of the ditch, the animals would scatter laterally, and it would require an almost superhuman pertinacity to drive them up the opposite side.

BELGIC OPPIDUM AT WHEATHAMPSTEAD, HERTS.



FIG. 3

BEECH BOTTOM : BELGIC BOUNDARY DYKE AT ST ALBANS, HERTS.

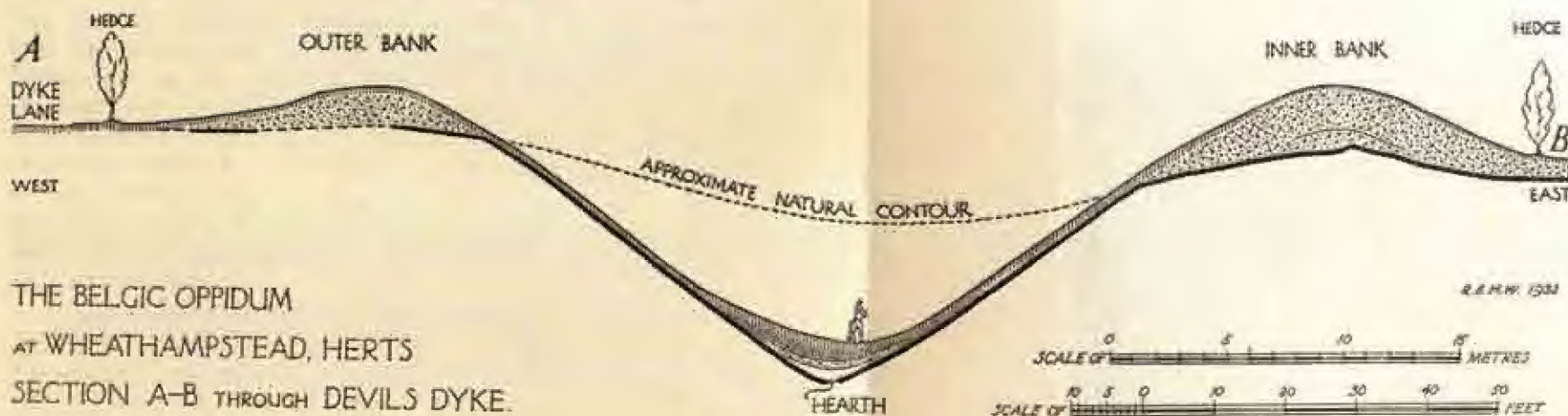


FIG. 4. Compare Figs 7 and 9

BELGIC CITIES OF BRITAIN

character of the dyke—its vast scale, its abrupt sides, its somewhat indifferent use of banks—leads the enquirer in search of analogy. When Mr O. G. S. Crawford, with his flair for the potentialities of an archaeological problem, dragged me first to Wheathampstead in 1930, on the eve of the Verulamium excavations, it was clear to both of us that the builders of the Beech Bottom dyke and of the Wheathampstead earthworks were the same people. Now, in 1932, with the fuller knowledge of the frontier-dyke, it followed (if we were right) that Beech Bottom and the Verulamium Devil's Dyke were relics of a transverse *limes* covering the whole tract of interfluvial country which depended, on the one hand, upon the Ver ford and Belgic Verulamium and, on the other hand, upon the Lea ford and the Wheathampstead earthwork. It remained only to insert the word ' Belgic ' before ' Wheathampstead ' to complete the symmetry of the theory. In other words, the partial excavation of Wheathampstead was forced upon us as a complement to the excavation of Belgic Verulamium.

Accordingly, with the ready compliance of Sir Charles Nall-Cain, Bart., and his tenant, the Verulamium Excavation Committee set to, and, in August and September 1932, under the immediate supervision of Mr J. E. Broad, Mr Kenneth Oakley and Miss N. Champion de Crespigny, a series of trial-trenches was cut through the defences and in the interior of the earthwork. The details of the site and its exploration need not detain us here. Suffice it to note that, on plan (fig. 3), the earthwork enclosed an area of at least a hundred acres; that its western and eastern sides (known respectively as the Devil's Dyke—not to be confused with the Verulamium Devil's Dyke—and the Slad) are, in origin, shallow re-entrants generously enlarged by man to a maximum width of 130 feet and to the astonishing vertical depth of 40 feet, with the earth spread mainly on the inner lip but partly also on the outer lip (figs. 4, 8 and 9); that a portion of its southern end has been completely defaced or is non-existent; and that its northern limit, unless represented by the Wheathampstead-Lemsford road, is not now visible.

The cutting through the defences (fig. 8) revealed no relics within the banks and no trace of previous occupation underneath them. In the extreme bottom of the ditch, *under* the 'rapid silt', were a hearth and a sherd of wheel-turned Belgic pottery. The area within the defences has in part a gravel subsoil, but is mostly capped by a cold and sticky boulder-clay which must have been cleared of a fairly dense woodland by the original occupiers. No huts were uncovered during

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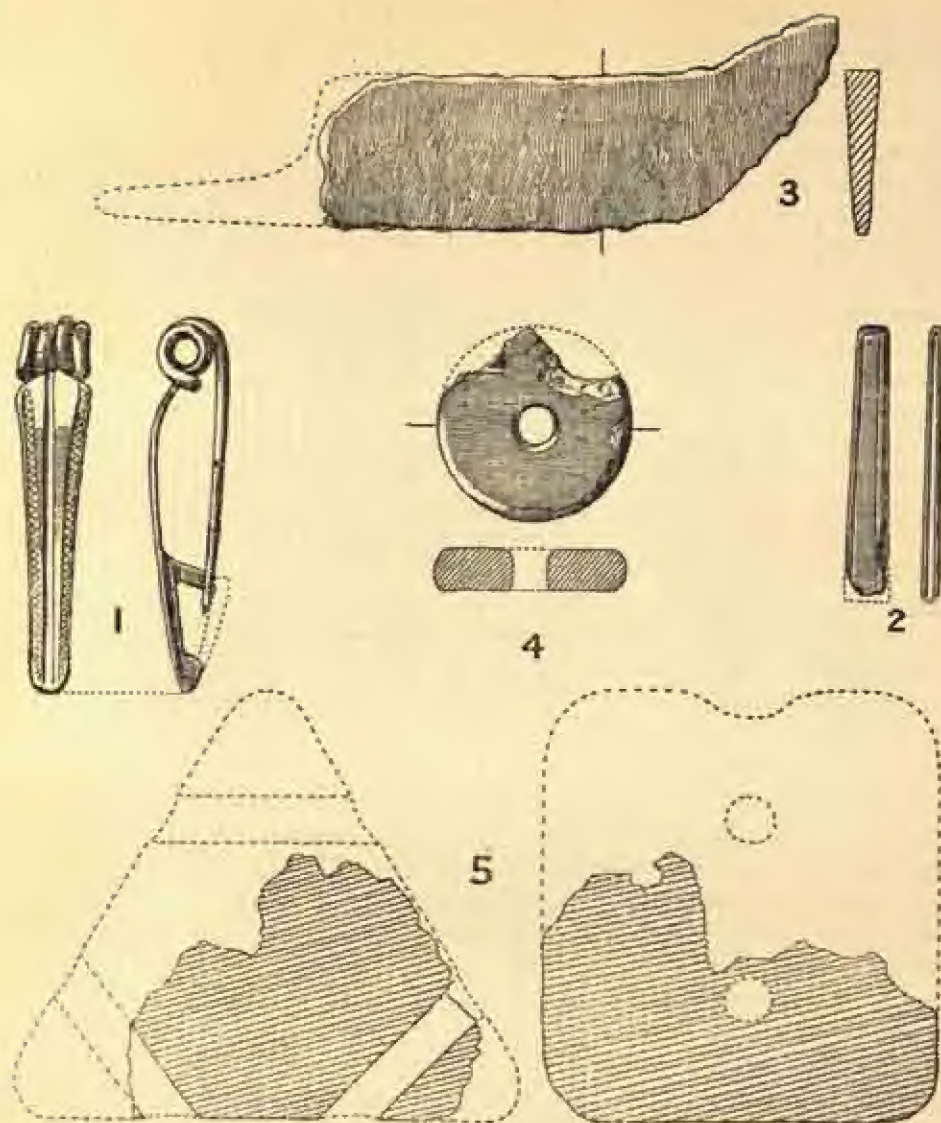


FIG. 5

THE WHEATHAMPSTREAD OPPIDUM

1, bronze brooch; 2, bronze tweezers; 3, iron knife; 4, clay spindle-whorl; 5, clay loom-weight (sections).

Scales: 1-3, $\frac{1}{2}$; 4 and 5, $\frac{1}{4}$.

BELGIC CITIES OF BRITAIN

the recent excavations, but a considerable stretch of two prehistoric U-shaped drainage-trenches, similar to those which are characteristic of Belgic Verulamium and Belgic Colchester, was cleared out at 'C' on plan (figs. 3 and 10). Into these trenches, during an ancient clearance of the adjacent surface, had been thrown innumerable potsherds, a few fragments of a triangular loom-weight of normal Early Iron Age type, a clay spindle-whorl, an iron knife, a pair of bronze tweezers and a bronze brooch (fig. 5). The brooch is a variant of the continental 'Nauheim' type (probably of mid-Gaulish origin) which is found on sites of the Mont Beuvray series in the first century B.C. But the large mass of pottery is the main clue to the history of the site. A detailed discussion of it would be inappropriate to the present context, but the salient features may be noted (figs. 11-13):—

- (i) It is all wheel-turned, the fabric varying from coarse thick gritty ware to smooth, grey or black ware.
- (ii) Much of it is cordoned, and most of it is of, or akin to, recognized Belgic types.
- (iii) Only three or perhaps four pedestals, and those very hesitant ones (fig. 11, nos. 1 and 4-6), occur; indeed, the suspicion is growing that, at the time of the Belgic invasion of Britain, the ancient pedestal-urn type was already regarded as archaic, and was rarely used save for ceremonial purposes, notably burials.
- (iv) There are no butt-beakers, no imported Italic wares and no imitations of Italic wares such as occur abundantly both at prehistoric Verulamium and at prehistoric Colchester.

This last feature contains the essence of the matter. With the doubtful exception of a few amphorae, the Italic wares—notably Arretine—and provincial equivalents first spread across the northern frontiers of Rome in the reign of Augustus, during the last quarter of the first century B.C. After the middle of the reign of Augustus these wares become normal in Belgic Britain. The pottery from Wheathampstead is abundant; it is devoid of Italic taint; it is therefore substantially pre-Augustan. With this conclusion another factor is consistent. The post Augustan Belgae of southeastern Britain were sure of themselves; boundary-dykes apart, their principal cities—Verulamium, Welwyn, Colchester—were either open or but lightly protected.⁵ But the monstrous earthwork of Wheathampstead tells a

⁵ Belgic Verulamium was open at first. The defences cover evidences of occupation and are secondary (see *ANTIQUITY*, June 1932, p. 137), and they are probably incomplete. They may be as late as the Claudian invasion. See below, p. 35.

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different story. It is the work of men with wealth, power, arrogance ; but it is the work also of men who were still, for one reason or another, uneasy in their adopted land.

The Wheathampstead earthwork is, then, a large Belgic oppidum dating from the early, pre-Augustan phase of Belgic colonization. Its rulers controlled the upper valley of the Lea, and the whole tract of country between it and the Ver. The northern limit of this tract they demarcated by a frontier-dyke of a size unapproached amongst the frontier-dykes of Britain. It may have been the German strain in their blood that showed forth in this ; for we are reminded of the oft-quoted words of Tacitus, who in the first century A.D. describes the German tribe of the Cherusci as assembling ' in a spot closed in by a river and by forests, within which was a narrow swampy plain. The woods, too, were surrounded by a bottomless morass, only on one side of it the Angrivarii had raised a *broad earthwork as a boundary* between themselves and the Cherusci ' (*Annals*, II, 19). The 'one side' was evidently the side devoid of natural obstacles such as swamp or forest, just as our Beech Bottom dyke-system is sited across a belt of relatively open country.

IV. VERULAMIUM AND WELWYN : OFFSHOOTS OF WHEATHAMPSTEAD

The large admixture of Italic forms, or of copies of Italic forms, amongst all the groups of pottery so far recovered from prehistoric Verulamium (Prae Wood and vicinity) was indicated in the summary published in ANTIQUITY last June. If further excavation shows that these groups are representative—and they are already conclusive for a large area of the site—then we shall be driven to an interesting historical conclusion. We shall be compelled to regard Verulamium as a foundation of the Augustan period (we know that king Tasciovanus struck coins there in the latter part of the first century B.C.), and to discard the conventional identification of it with the city of Cassivellaunus stormed by Caesar in 54 B.C. Caesar, it will be remembered, nowhere names the city. His general indications would fit the Wheathampstead site, only five miles away, just as well as they fit Verulamium. And since now we have at Wheathampstead an oppidum of the Caesarian era, as it seems, and of outstanding magnitude—a place far more worthy of Caesar's powerful opponent than the Verulamium site—it is easier, in the light of the new evidence, to transfer the historic scene from the Ver to the Lea. Verulamium emerges as a later foundation, established or developed by Tasciovanus in the last quarter of the

BELGIC CITIES OF BRITAIN

first century B.C. as an open city (subsequently fortified—see below), at the western end of the Lea-Ver frontier, in a position precisely similar, in its relation to valley and ford, to that occupied by its predecessor at Wheathampstead. Thereafter, if our evidence is representative, Wheathampstead waned as Verulamium waxed; it may be that the partial obliteration of the Wheathampstead earthwork represents a deliberate 'slighting', at this period, of an oppidum already obsolete. Incidentally, on this general view, the 'Devil's Dyke' frontier north of Verulamium and west of the Ver would be an extension, on a lighter scale and in the time of Tasciovanus, of the older Beech Bottom system.

The reason for this transference of focus from the Lea to the Ver valley can only be guessed. Here it will suffice to observe that the Ver valley is the better adapted for an extension of influence in the direction of the midlands; indeed, it later bore the Roman Watling Street. And it is towards the northwest, in the direction of Bedfordshire and Northamptonshire, that the Belgic pedestal-urn culture finds its ultimate limit in the hinterland of Britain. This northward movement may well have occurred during the long reign of Tasciovanus, and, pivoted on Verulamium, may have confirmed the authority and prosperity of the new capital.

In connexion with Wheathampstead and its environs, one other site claims a momentary notice. Three miles northeast of the oppidum the valley of the tiny Mimram or Maran, tributary of the Lea, runs nearly parallel to the major river and is joined from the northeast by the dry valley which now carries the arterial Great North Road. Here, on the south side of the stream, a rich Belgic pedestal-urn cemetery was found and largely destroyed in 1906. The association of numerous Italic imports with the Belgic products implies both considerable wealth and a relatively late date—not earlier, probably, than the end of the first century B.C., and perhaps rather later. The site of the actual settlement has not been identified, but may well have been the low flat-topped promontory at the valley junction, to the north of the stream. Here, then, we are again confronted by a riverside Belgic settlement, apparently later than Wheathampstead and doubtless in some sense derived from it.

In tabular form, the provisional results of the field-work which is the basis of this paper may now be stated as follows:—

1. In the first half of the first century B.C. a major Belgic

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oppidum was established beside a ford in the upper Lea valley at Wheathampstead in Hertfordshire. This is more likely than any other known site to have been the headquarters of Cassivellaunus at the time of the Caesarian invasion.

2. The adjacent tract of country, between the Lea valley and a fordable point on the Ver valley, five miles away, was wholly or partly delimited towards the northwest by a formidable valley-dyke (Beech Bottom), which would constitute both a clear political boundary and an effective obstacle to cattle-driving.

3. Later, in the latter part of the first century B.C., began the great period of Belgic prosperity in southeastern Britain, coincident with the conservative continental régimes of Augustus and Tiberius. An open settlement, of some substance, came into being three miles from Wheathampstead on the banks of the Mimram at Welwyn. More important, Verulamium was established beside the ford at the opposite end of the vicinal territory of Wheathampstead, and the frontier-dyke, on a considerably smaller scale, was appropriately extended westwards across the Ver (Devil's Dyke, north of Prae Wood). The ancient fortified city at Wheathampstead, under the changing conditions of a developing countryside, now lost its primary importance, and the new city on the Ver became the royal headquarters. When, a generation later, these were moved once more, to the coastal site of Colchester, Verulamium remained a flourishing Belgic city of secondary political importance. Almost immediately after the Claudian invasion, the prehistoric site was abandoned and the new *municipium* arose on the hillside below it.

V. THE BELGIC OCCUPATION OF BRITAIN

The Wheathampstead earthwork, then, appears on the map as a bulwark of Caesarian Britain. As such it may, in conclusion, be considered briefly in its general relationship to the Belgic immigrations.

The Belgae, as they are known to us from many burial-sites and a few settlements, resembled the Germans, from whom they were in part descended, in their predilection for river-valleys. They were not, like the non-Belgic inhabitants of prehistoric Britain, first and foremost a downland folk. Even in non-Belgic Britain, the gravel banks of rivers bore, indeed, a far larger prehistoric population than is sometimes

PLATE IV



FIG. 6. REVERSES AND REVERSES OF PART OF SILVER COIN-BOARD FROM THE BEECH BOTTOM DYKE
1-9 Republican; 10, Galba; 11, Vitellius; 12-16, Vespasian; 17-20, Titus; 21-22, Domitian; 23-24, Trajan; 25, Hadrian

PLATE V



FIG. 7. THE 'DEECH BOTTOM' BOUNDARY-DYKE
Northern slope, with nets marking respectively the foot, middle and top. Compare FIG. 4

PLATE VI

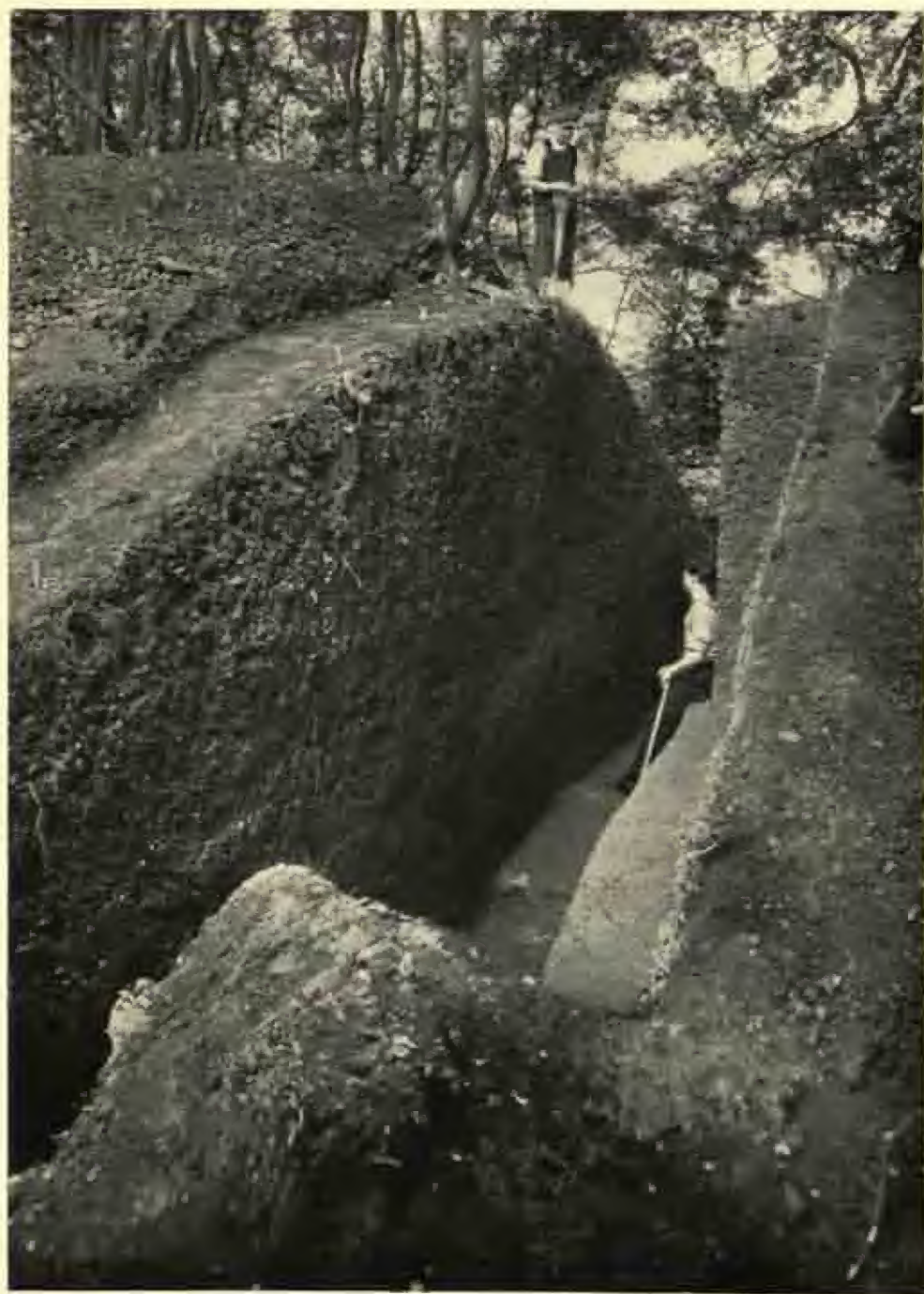


FIG. 3. THE WHEATHAMPSTRAD OPPIDUM: CUTTING THROUGH THE INNER BANK
OF THE 'DEVIL'S DYKE'

PLATE VII



FIG. 9. THE WHEATHAMPSTEAD OPPIDUM: INNER SLOPE OF THE DEVIL'S DYKE.
The three men respectively mark the foot, middle and top of the slope. Compare FIG. 4.

PLATE VIII



FIG. 10. THE WHEATHAMPSTEAD OPPIDUM: DRAINAGE DITCH AS CLEARED, WITH PARTIALLY EXCAVATED CROSS-DITCH IN FOREGROUND

PLATE IX

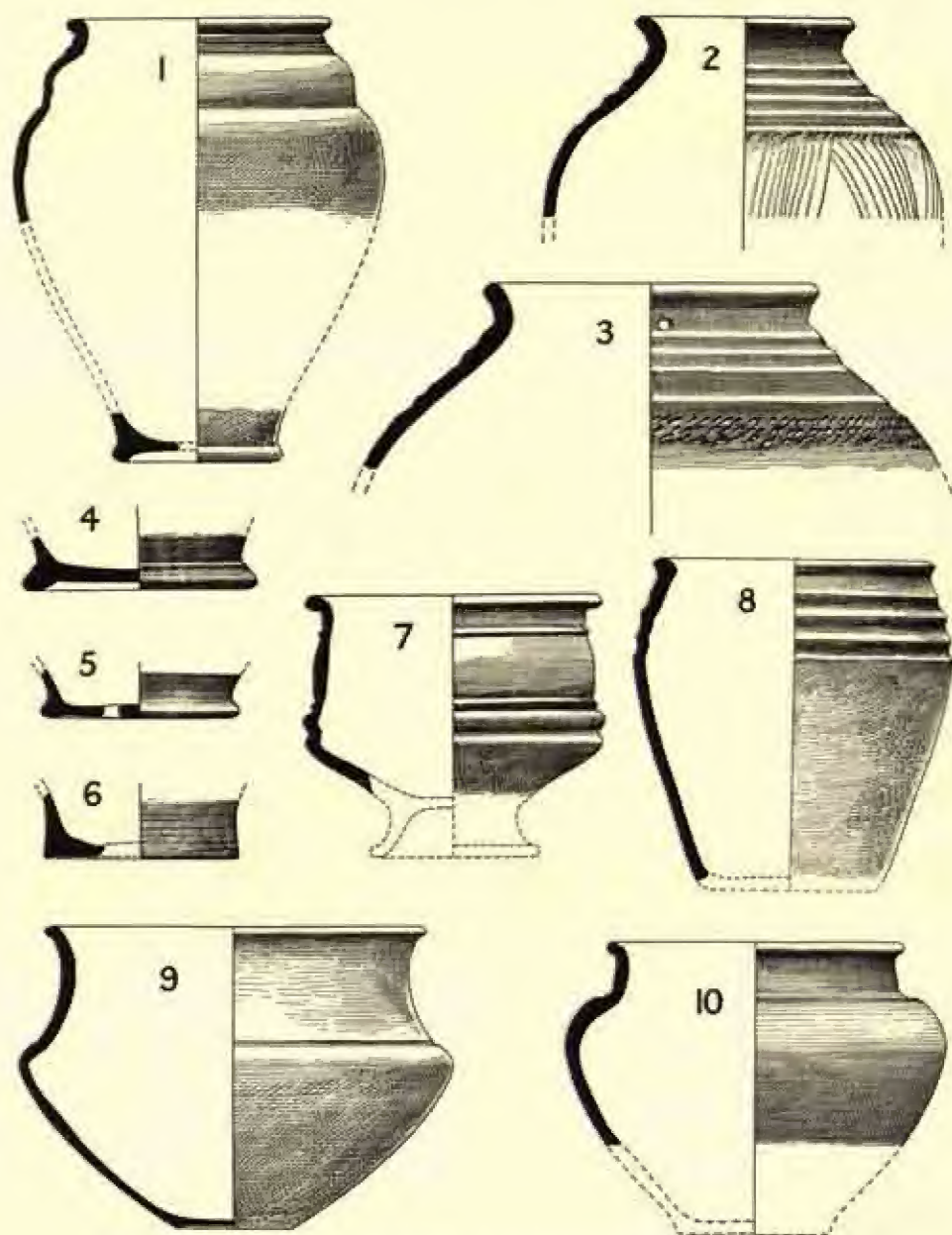


FIG. II. POTTERY FROM THE WHEATHAMPSTEAD OPPIDUM 4

PLATE X

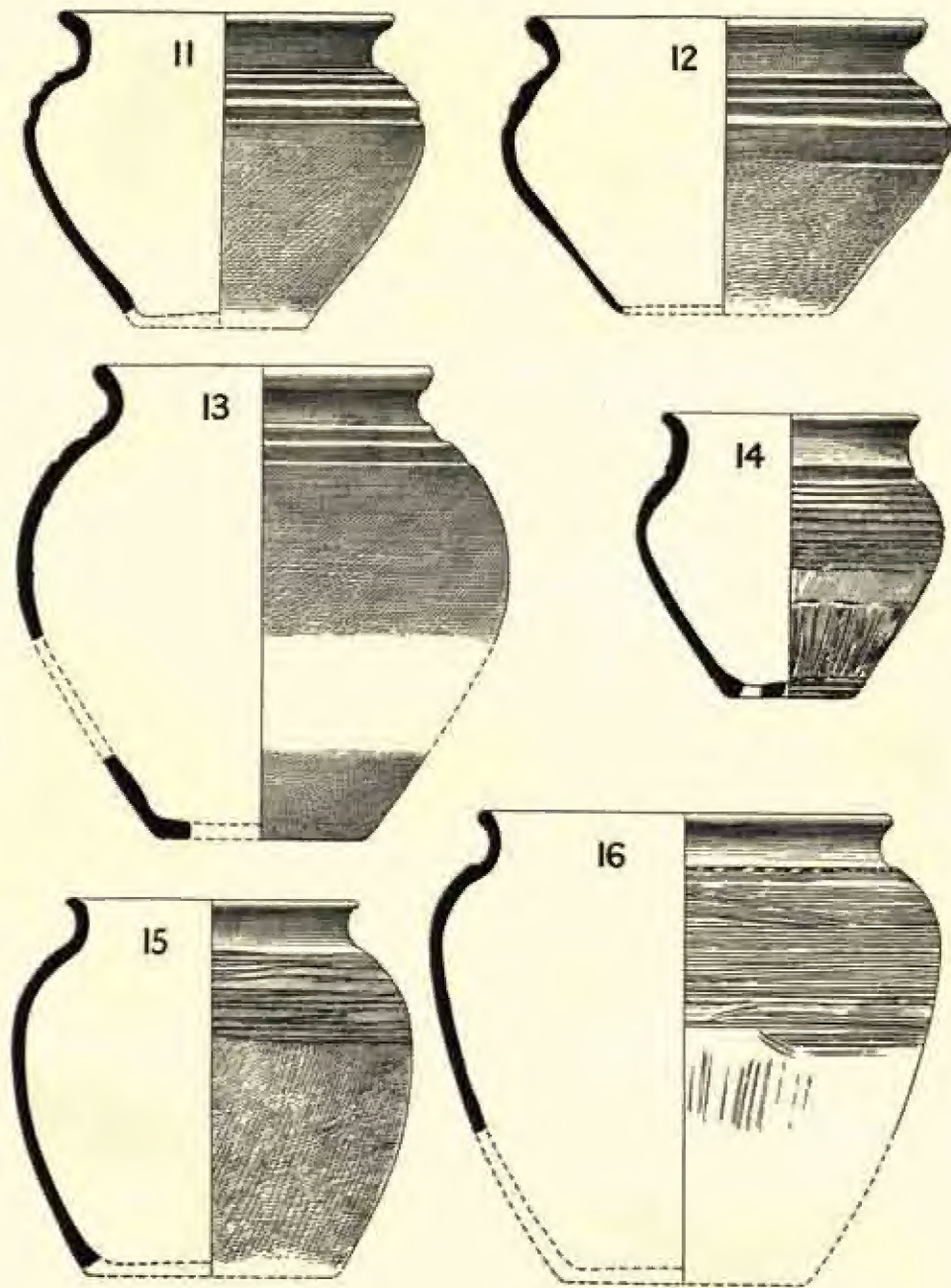


FIG. 11. POTTERY FROM THE WHEATHAMPSTEAD OPPIDUM

PLATE XI

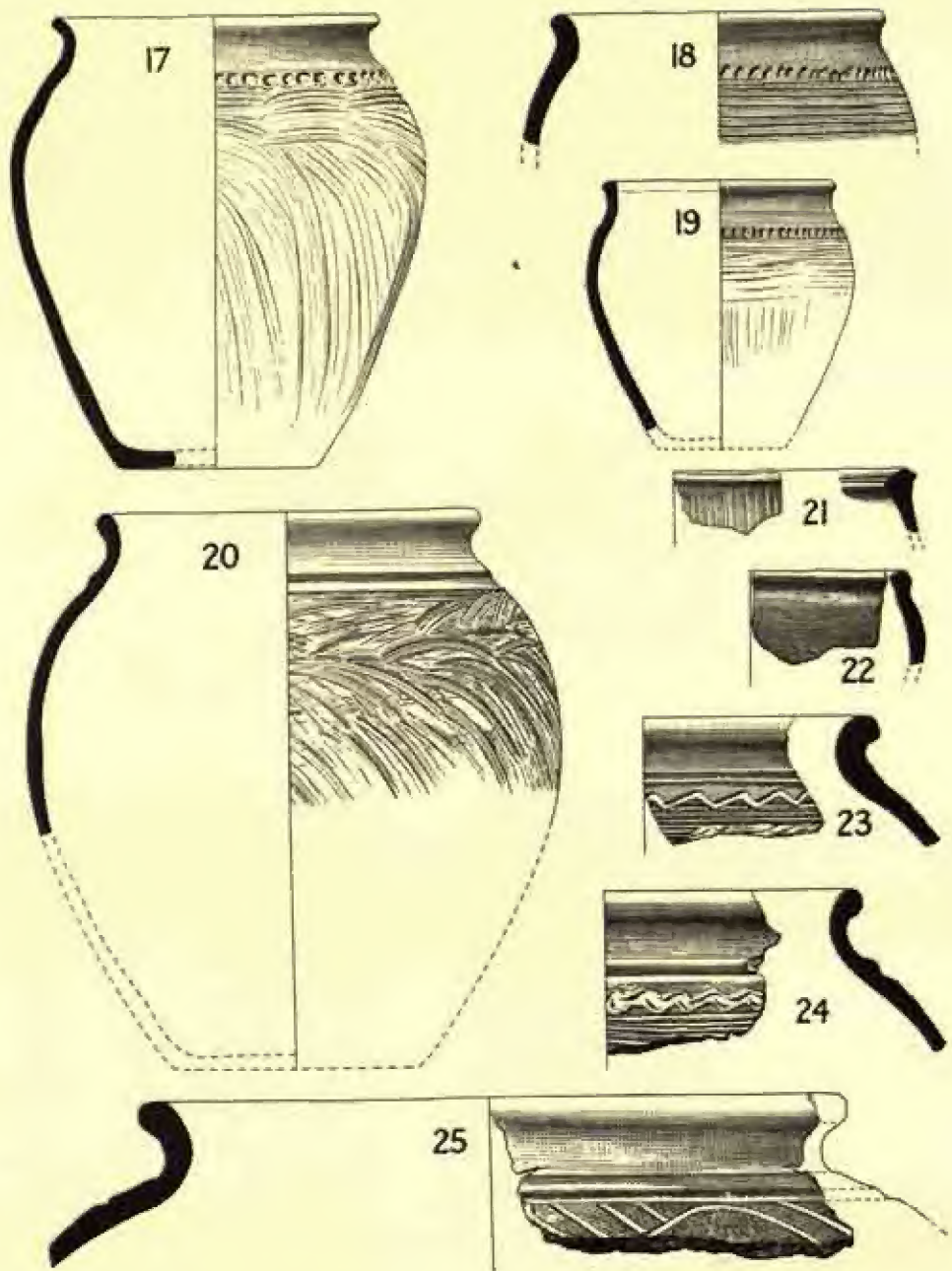


FIG. 19. POTTERY FROM THE WREATHAMPSTEAD OPPIDUM 3

BELGIC CITIES OF BRITAIN

realized. But the Belgae were more than riverside villagers. They *exploited* the rivers, appropriated the fords, used and controlled the river-system as a part of a scheme of valley and cross-valley highways. This was substantially a new phenomenon in prehistoric Britain. It was the work of a group of organized and wealthy peoples who were something more than the mere outcast continental surplus from which ancient Britain had often enough been compelled to recruit her population. They had come to the island first to plunder, says Caesar, and then had settled there as tillers of the soil. They were in a sense an anticipation of the Teutonic invaders of post-Roman times; and, although they lacked the solid Roman foundation upon which the later Saxons were able ultimately to build, it is worth observing, in passing, that even today the Belgic cities of Britain are not, all of them, waste cities—that Colchester, Winchester and one or two others can show some title to a direct Belgic ancestry.

As a valley-folk, the earlier Belgic invaders sought out the Kentish rivers, travelled up the Stour to Sturry and Swarling, and perhaps established their first oppidum in Bigberry Wood, on the low hill-top overlooking Canterbury.* Further along the coast, the Medway attracted them to Aylesford and Allington. On the opposite shore of the Thames estuary, they landed at Shoeburyness and made their way up the rivers of Essex to Burnham and elsewhere. But the first important tributary which they encountered on this side of the Thames was the Lea, just below the future site of London. Up this tributary turned the vanguard of the 'invasion', and in or near the higher reaches of the river brought the earlier phase of the movement to a close. Here the Belgic Catuvellauni, not yet perhaps very numerous, paused long enough to consolidate and develop and delimit their new territory. Here, at Wheathampstead, they built their oppidum; and here, one may guess, were the headquarters of Cassivellaunus at the time of the Caesarian raids. Later, in a pacified countryside, open towns and villages sprang up, situated characteristically in the neighbourhood of fordable rivers. The old Wheathampstead oppidum—perhaps the unidentified Ricon(ium) or Sego(ntium) at which, in addition to Verulamium, Tasciovanus would appear to have struck coins during

* For the evidence available from this site, see R. F. Jessup in the forthcoming *Archaeological Journal*, LXXXIX (1932). No prehistoric site in southeastern Britain should better repay excavation—as, in another sense, the gravel-diggers have already discovered.

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his long reign—was now largely obsolete and its mantle fell upon Verulamium, the new open city founded by Tasciovanus himself. The development of continental trade which accompanied the



Fig. 14

consolidation of Roman Gaul by Augustus and the consolidation of Belgic Britain by the Cassivellaunian dynasty necessitated, before long, a further transference of the Belgic headquarters to a site nearer to the coast ; hence, at the beginning of the first century A.D., the Colchester

BELGIC CITIES OF BRITAIN

of Cymbeline. Finally came the Roman invasion of A.D. 43. Colchester, the native capital, was the primary objective of the legions. Verulamium must have submitted soon afterwards, but it may have been at this moment that the inhabitants of that city, in a region where the craft of defensive earthwork had been in abeyance for two generations or more, clumsily attempted to fortify themselves with the stockade and the incomplete, rather ramshackle earthwork which can be traced in Prae Wood today. Only in the west, in Wessex and the adjacent regions, did the Belgae of the Bead-Rims—the last phase, it seems, of pre-Roman Belgic immigration—still, at this late period, dwell here and there in fenced cities along the margin of Belgic Britain (fig. 14).⁷

⁷ See also map by C. F. C. Hawkes, *ANTIQUITY*, March 1931, p. 91. In adapting Mr Hawkes's useful map, I have here omitted from it all the 'hill-forts' of the Cambridge region, since a fresh examination of the evidence from those sites, kindly communicated to me by Dr Cyril Fox, makes it very doubtful whether any of them should be ascribed in any significant sense to the Belgae. In other cases it is uncertain whether the actual fortifications are the work of the Belgae, though Belgic occupation is indicated in every instance. Exact classification is often difficult; Hengistbury Head, for example, might fall into any of the three categories. Chichester should possibly be included under the last symbol, but there is no positive evidence.

British Maglemose Harpoon Sites

by H. and M. E. GODWIN

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DURING the improvement of the climate of Europe which followed the retreat of the ice at the close of the last glacial period the continent suffered re-invasion by successive waves of immigrating plants at rates determined partly by their natural climatic range and partly by their relative capacity to spread by seeds or by vegetative means. Of this migratory flora the trees are conspicuously important, firstly in that they dominated by their life-form the other components of the vegetation, and secondly in that, being wind-pollinated, they produced vast quantities of pollen which were carried by the wind over wide distances and incorporated in any deposits then forming. In peat and in estuarine and coastal silts particularly, conditions largely inhibited bacterial decay of the spores, the outer membranes of which remain recognizable in microscopic examination. Systematic analysis by the methods introduced by Von Post has now been applied over a large part of Europe and very considerable resemblance is evident in the migratory sequence of forest-types over the whole continent. Since the post-glacial climatic optimum, the climate of the continent has suffered further fluctuations and these are also characterized by regular and well marked changes in the forest-cover of the land as indicated by the fossil pollen-content.

It therefore follows that, when due allowances have been made for latitude and longitude of a given site, for its relation to the continental margin and so forth, the sequence of contained fossil pollen will afford a general post-glacial time-scale which can be, and in fact has been, correlated with such indices of post-glacial chronology as the beaches of the Baltic seas, the glacial lake-deposits of De Geer, and the broad divisions of archaeology. As an example we may refer to the left-hand section of fig. 1, which shows the complete sequence of post-glacial pollen deposition in central and north Esthonia as worked out by Thomson (1). A very well-marked series of forest-types is shown, with a clear general correlation with the Blytt and Sernander climatic periods and other dating points. Similar diagrams have been constructed for many parts of Europe, and it is clear that they can afford great assistance in solving problems of post-glacial stratigraphy.

BRITISH MAGLEMOSE HARPOON SITES

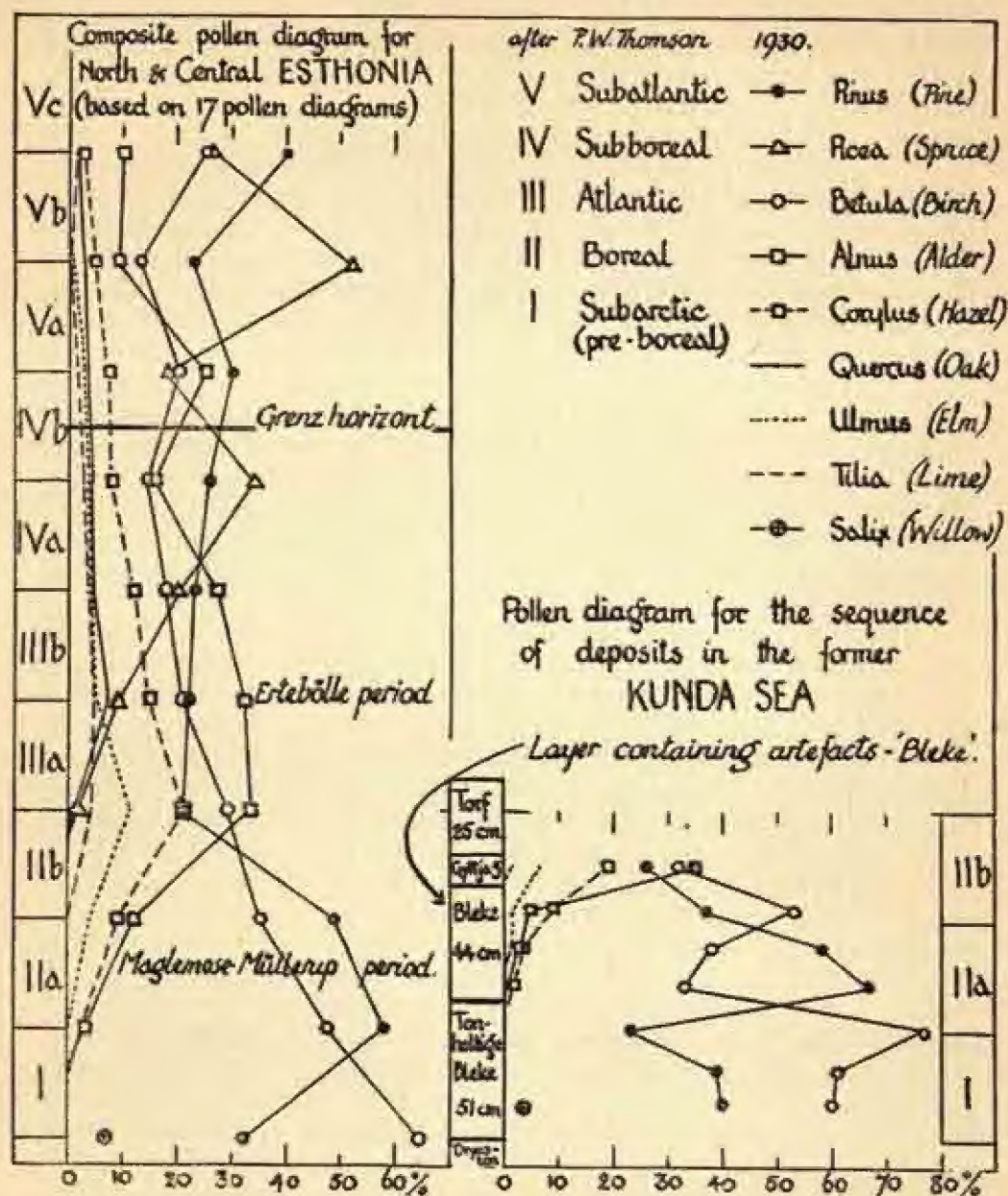


FIG. 2

ANTIQUITY

The problem to which the method is applied in this paper is the determination of the age of three bone harpoons discovered in England since 1903. Two specimens come from East Yorkshire, where they were discovered by Mr Morfitt at Skipsea and Hornsea in the years 1903 and 1905 respectively. They were not described until 1922 when Mr A. L. Armstrong claimed that they were of Maglemose culture (4). This claim evoked severe controversy, and the two important committees formed to consider the authenticity of the harpoons expressed their opinion, based largely on the evidence of the implements themselves, that the harpoons were genuine Maglemose artifacts. They resemble however the more developed type of those fabricated in Kunda, Esthonia rather than the type found in the original Maglemose station at Müllerup, Zealand. It happens that close pollen statistical analysis has been made both of the Esthonian and Danish sites and in the present paper the authors describe similar analysis of the peat deposits in which the Yorkshire harpoons were found. By this means it has become possible to correlate the Yorkshire beds at Skipsea quite closely with those of Kunda and Esthonia, the results supporting in the strongest possible manner the original claim that the harpoon found there was of Maglemose age.

In the summer of 1932 the skipper of the steam drifter *Colinda* procured another bone harpoon of Maglemose type in a sample of 'moorlog' (peat) brought up by the trawl from between the Leman and the Ower banks off the Norfolk coast. The site is about 25 miles (40 km.) from the coast, and the 'moorlog' lies in about 19-20 fathoms (6 m.) of water. Unfortunately the original 'moorlog' was not kept, but further samples trawled from as nearly as possible the same site have been subjected to pollen-analysis by the authors, again with a view to establishing more closely the age of the harpoon. The pollen-content again shows close relationship to the Maglemose culture-layers of Zealand and Esthonia.

SKIPSEA

The Maglemose harpoon discovered by Mr Morfitt in 1903 occurred in the bed of an old mere exposed during coastal erosion just north of Atwick on the Yorkshire coast. The implement was found in the silt below five feet of peat during the excavation of the skeleton of an elk (*Cervus giganteus*). Remains of reindeer were found on the harpoon level and the silt was later recognized as containing a fresh water *Ancylus* fauna. Following the controversy which arose as to the

BRITISH MAGLEMOSE HARPOON SITES

authenticity of the Holderness harpoons Armstrong investigated the mere site, and from the silt underlying the peat and from the basal peat was able to describe a series of flint implements of Maglemose type.

In the summer of 1932 the authors were enabled by the courtesy of Mr Armstrong to see the mere site in his company and to take a complete vertical series of samples for analysis through the mere deposits. Continued coastal erosion had by this time left the harpoon site some yards seaward but a good section of the mere was still evident as a shallow peat bed crescentic in section about 100 yards wide, about 9 feet thick in the middle, and tapering out to nothing at the margins. At the sampling site the section was as follows :

(0.76 m.) 2 feet 6 inches, fine brown clay—now cracking into columnar form. A fresh water deposit.

(2.13 m.) 7 feet, solid black or brown amorphous peat with large numbers of horizontal tree branches or trunks, including much oak (*Quercus*) especially in the upper two feet, which is almost solid with them. Hazel nuts found at 4 feet 4 inches, 5 feet 6 inches and 6 feet 4 inches, from the top of the bed, and at its very base.

(0.15 m.) 6 inches, brown sandy silt—with fragments of *Pinus* bark, fins of pike (*Esox lucius*) and flint artifacts. Stone fruit of (?) *Prunus*. Buttery Blue Clay.

During the sampling further artifacts were found in the sandy silt just underlying the peat : these are in the possession of Mr Armstrong and clearly are of the same type as those described by him in 1923.

The first analysis was of 20 samples taken through the full extent of the mere deposits—at this place 7 feet 5 inches (2.26 m.) thick. The results are given as (a) series in fig. 2, and they show especially in the basal samples extremely striking composition and change in pollen-content. The salient features of the lower samples are these :—(a) the immigration of *Alnus* (alder) is shown by its total absence from the lowest sample and its rapid rise to dominance in succeeding samples in which it reaches respectively 1, 18 and 50 per cent. of the total tree-pollen ; (b) progressive diminution in the percentages of *Pinus* (pine) and *Betula* (birch) pollen ; (c) an extremely high initial *Corylus* (hazel) percentage (over 200 p.c. of the total tree-pollen—in which hazel itself is not reckoned), falling very rapidly to lower values (about 30 p.c.) though with a pronounced secondary maximum ; (d) a small percentage of *Salix* (willow) in the basal sample dwindling to nothing in samples above ; (e) *Tilia* (lime) is present in very small amounts in the samples below 6 feet, and is absent altogether from the two lowest ;

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(f) *Ulmus* (elm) and *Quercus* (oak) show high percentage values in the lower samples.

The two tree genera characteristic of the early Boreal period all over northwest Europe are *Pinus* and *Betula*, with the two genera *Salix* and *Corylus*, the pollen of which is reckoned separately. High *Corylus* frequencies are extremely characteristic of the Boreal period especially in Europe (8 and 9). It was in late Boreal times that *Quercus* and *Ulmus* immigrated and began to form a substantial part of the total tree-pollen. The immigration of *Alnus* and its rapid increase in frequency, with corresponding diminution in *Pinus* and *Betula* is generally regarded as marking the transition period from late Boreal to early Atlantic, and *Tilia* is supposed to have immigrated at about this time. It will be seen that by all these criteria the basal samples from the Skipsea (a) series (e.g. 7 feet to 7 feet 5 inches) occur at the transition from the late Boreal to the early Atlantic period.

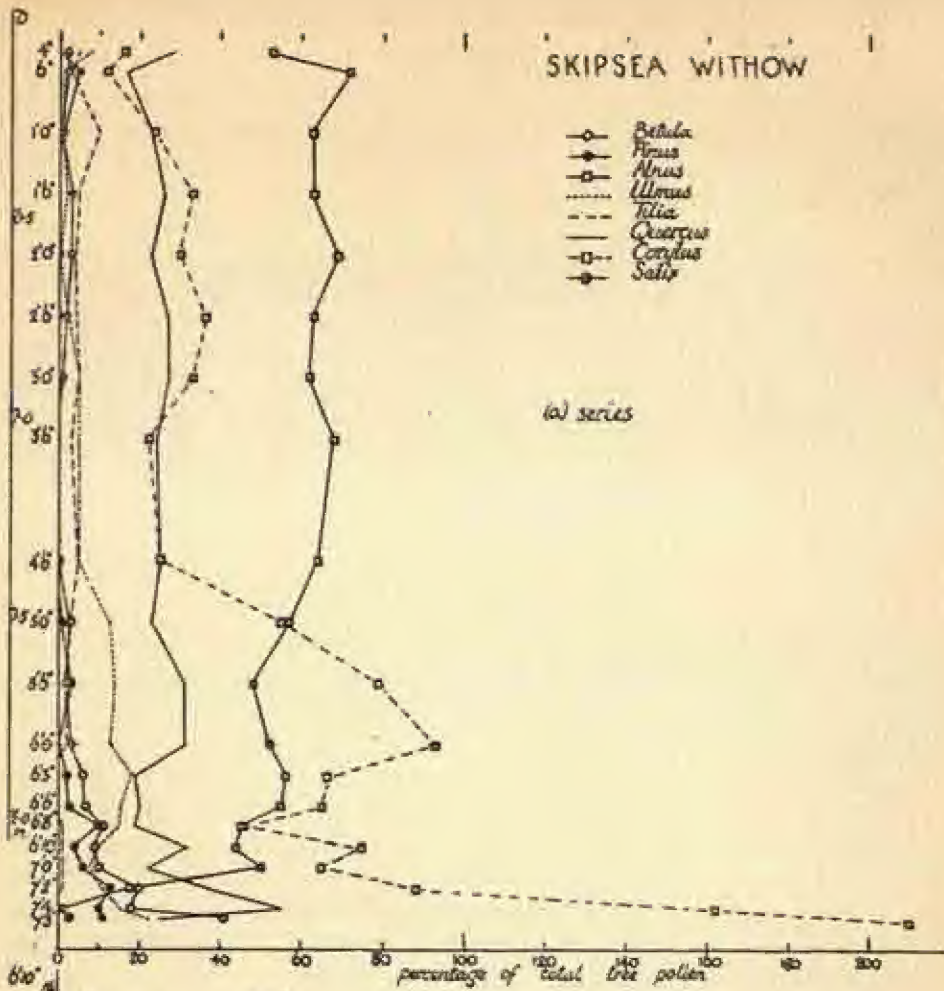
In order to test more thoroughly the validity of the basal analyses a second series of samples was collected from the same site but nine samples were taken in the bottom 6.5 inches (16 cms.), this distance covering the zone in which most of the artifacts have been found. The results of the analyses are shown in series (b), fig. 2, and it will be seen at once how strongly they support the results of series (a). In all cases closely comparable percentages of pollen were obtained save that the lowest sample of (b) appears to be a little older than the lowest of (a), and correspondingly shows higher *Ulmus* and *Salix* (33 p.c.) and lower *Quercus*. These facts however only strengthen the case for the validity of series (a), and it is especially noteworthy that there is no *Alnus* pollen at all in samples 1 and 2 of series (b).

It remains to apply these results to the actual harpoon site itself and the possibility of this depends on the contemporaneity of the basal silt right across the mere. A further analysis (no. 10) bearing on this point is that of a sample taken from the very base of the silt much nearer the mere margin than the site we have been describing. The peat here was only 3 feet (1 m.) in thickness, and it seems unlikely that the harpoon site could be younger than this since (a) it was covered by a greater peat thickness and (b) it was exposed on the beach itself, i.e. some feet lower in level than no. 10, and therefore would be presumably in a deeper part of the mere and one in which deposition would tend to occur earlier. The sample on analysis yielded percentages for *Pinus* 5, *Betula* 11, *Quercus* 21, *Ulmus* 15, *Tilia* 1, *Alnus* 47, *Corylus* 51. This composition can only be matched satisfactorily in the samples of

SKIPSEA WITHOW

- Betula
- Pinus
- △ Alnus
- ⋯ Ulmus
- - - Tilia
- Quercus
- Corylus
- ◐ Salix

(a) series



(b) series

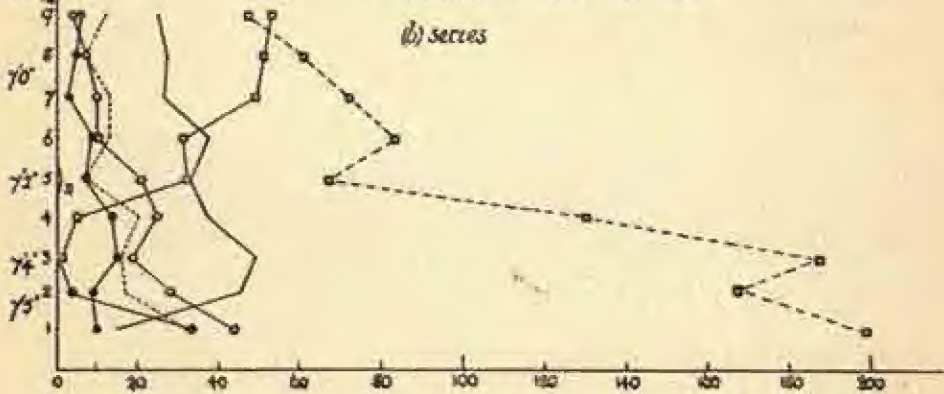


FIG. 2

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levels about 6 feet 10 inches or 7 feet of the (a) and (b) series. Since these are about the period of transition from Boreal to Atlantic, the harpoon site is almost certainly rather older than this, *i.e.* late Boreal.

This of course accords completely with the presence of the remains of elk, reindeer and the *Ancylus* fresh water fauna of the silt, all of which probably disappeared in this country before Atlantic times.

There is little point for the purpose of the present paper in discussing the upper samples of the Skipsea (a) series but it may be noted that even the upper samples do not show anything of an age younger than Atlantic. The relatively high *Tilia* values in the upper samples may at a later date help towards correlation with other coastal deposits and a closer estimate of age (10).

THE LEMAN AND THE OWER BANKS

From the 'moorlog' sample trawled from the site of the harpoon discovery two analyses were made, one close to the top and the other near the base, which was recognizable as having been the line of breakage from the underlying sandy rock.

Peat sent from this site to Dr Erdtman of Stockholm is said also to have come from the same sample, and we have put all four into what appears to be their natural sequence (11).

	<i>Betula</i> (Birch)	<i>Pinus</i> (Pine)	<i>Alnus</i> (Alder)	<i>Ulmus</i> (Elm)	<i>Tilia</i> (Lime)	<i>Quercus</i> (Oak)	<i>Corylus</i> (Hazel)	<i>Salix</i> (Willow)
H and M.E.G. (top) ..	16	64	—	—	—	17	80	—
Erdtman	12	74	—	2	—	12	47	—
H and M.E.G. (bottom) ..	13	85	—	—	—	1.4	81	1
Erdtman	43	57	—	—	—	0	39	—

The agreement between our results and those of Erdtman is quite satisfactory and all indicate the early Boreal age of the samples. The absence of *Alnus* from all four samples, the virtual absence of *Ulmus*, and the absence of *Quercus* from the basal sample, suggest that this peat may be rather older than any examined from the Skipsea site.

Later in 1932 the authors obtained by the courtesy of Dr Muir Evans new 'moorlog' samples trawled by the *Colinda* on a return visit to the Leman and the Ower banks. This came from between the two north buoys of the Leman and the Ower.

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The analysis of specimens from the top and bottom of the sample (4.5 inches [11 cms.] apart) shows the following composition.

		<i>Betula</i>	<i>Pinus</i>	<i>Alnus</i>	<i>Ulmus</i>	<i>Tilia</i>	<i>Quercus</i>	<i>Corylus</i>	<i>Salix</i>
a	..	30	69	1	—	—	—	4	2
b	..	75	23	—	—	—	—	7	—

The harpoon was stated to have been discovered on breaking open a piece of 'moorlog' so that if the above samples represent the full depth of the 'moorlog' on the banks the harpoon must be of early Boreal age. This conclusion is however subject to the confirmation of the fact that there is no 'moorlog' on the Leman and the Ower banks of a different age from those samples which have been examined here.

HORNSEA

It is recorded by Mr Armstrong (4 and 5), quoting from the records of Mr Morfitt, that the Hornsea harpoon was discovered during the excavation for a gas-holder, 12 feet from the ground surface and in a peat bed containing the remains of reeds, etc. The evidence of subsequent excavation and boring on the gas works site, though it supports the idea that a peat bed is present about 12 feet (3.65 m.) from the surface suggests that the bed is very thin and probably only developed locally.

The attempts of the present authors to secure samples for analysis from this bed have so far been unsuccessful. The borings they have had made apparently pass at 12 feet from the present surface through a mixture of fine gravel and clay containing tiny black fragments probably of organic matter.

ESTHONIA

The archaeological finds at Kunda come from a layer of 'bleke', a fresh water calcareous deposit about 1 m. in thickness, which was laid down in the shallow basin of the Kunda Sea. This deposit overlies a clay containing remains of sub-arctic plants and with a corresponding content of *Betula*, *Pinus* and *Salix*. The calcareous deposit is overlaid by a widespread sandy layer formed by a catastrophic invasion of the Kunda Sea by the Baltic, and indicating the termination of the lake period in which the Kunda artifacts could have been laid down. Not

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only has careful pollen analysis been made of the calcareous lake deposit itself, but also of the beds above and below it so that the most exact limits can be set to the age of the artifact deposits. The pollen analysis of the Kunda Sea deposits has been done by P. W. Thomson and he gives his results in a diagram from which fig. 1 has been redrawn (1, 2 and 3). On the left of the diagram is the generalized pollen sequence from north and central Esthonia and this has been closely correlated with the beaches made at the maximal transgressions of the Ancylus and Litorina seas. The Ancylus maximum is in the middle of the Boreal period of Esthonia, corresponding exactly with a maximum in *Pinus* pollen. The Litorina maximum occurs in the middle of the Atlantic period and corresponds with the maximal extension of the mixed oakwoods and the post-glacial climatic optimum of Von Post. Here, as throughout the post-glacial sequence, the pollen analyses indicate close correspondence between Esthonia and south Sweden.

The pollen analyses for the Kunda Sea deposits are given on the right of the same figure and show, in comparison with the generalized Esthonian diagram, a very clear indication of the Boreal age of the layer containing the artifacts. The essential features are those characterizing the Boreal period over all northwest Europe, *i.e.*, the *Pinus* maximum and subsequent fall, the diminishing *Betula*, the immigration and rapid increase of *Alnus* and the immigration of *Ulmus*. *Quercus* is not yet present, and *Corylus* is present only in small amount, both features which tend to characterize the Boreal period in the more northerly and continental parts of Europe (see Von Post, 9, and Erdtman, 8).

Other artifacts of the Kunda type have also been found in Esthonia in the Embachtal near Dorpat, and Thomson's analyses for this site show the same age as those for Kunda. The analysis shown in the following is for the total thickness of the lake deposit in which the implements were found.

EMBACHTAL

	<i>Betula</i> (Birch)	<i>Pinus</i> (Pine)	<i>Alnus</i> (Alder)	<i>Ulmus</i> (Elm)	<i>Tilia</i> (Lime)	<i>Quercus</i> (Oak)	<i>Corylus</i> (Hazel)	<i>Picea</i> (Spruce)	<i>Salix</i> (Willow)
' Kalk Gyttja und Bleke '	40	53	—	7	—	—	8	—	—
	51	42	—	7	—	—	3	—	—
	71	28	—	1	—	—	1	—	—

It will be seen that the lake deposit is entirely of Boreal age.

BRITISH MAGLEMOSE HARPOON SITES

POLLEN ANALYSES FROM THE CULTURE LEVELS OF MAGLEMOSE SITES
IN ZEALAND, DENMARK. (After Jessen)

	SITE	LEVEL	<i>Betula</i> (Birch)	<i>Pinus</i> (Pine)	<i>Alnus</i> (Alder)	Mixed Oak Forest (Oak and Birch and Lime)	<i>Corylus</i> (Hazel)	<i>Picea</i> (Spruce)	<i>Salix</i> (Willow)
1	Svaerdborg	Lower limit of Culture level	31	44	14	11	22	—	1
2			56	39	1	3	9	—	1
3	Müllerup	Upper limit of Culture level	32	52	3	12	55	—	1
4		Lower " "	39	50	3	7	47	—	1
5		7 cms. below " "	60	39	—	—	7	—	1
6	Holmegaard W.-Station	5 cms. above Culture level	24	29	28	19	43	—	+
7		Upper limit of " "	16	37	30	15	25	1	1
8		Middle of " "	15	48	21	16	41	—	—
9		Lower limit of " "	11	78	3	7	18	—	1
10		20 cms. below " "	76	24	—	—	2	—	+
11	Holmegaard E.-Station	20 cms. above Culture level	16	20	36	28	27	—	—
12		Upper limit of " "	4	34	45	17	10	—	—
13		Middle of " "	7	52	26	15	31	—	—
14		15 cms. below " "	51	47	—	1	70	—	1

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DENMARK

In his investigations of the Danish type-stations of the Maglemose culture, Broholm fortunately collaborated with K. Jessen of the Danish Geological Service, who had been one of the earliest workers in Europe to use the method of pollen analysis and who here applied it to all the archaeological stations investigated. His results (12) are given in tabular form on page 45.

The culture-layers in all cases appear to be definitely of Boreal age, coinciding with the immigration of *Alnus*, and showing diminution of initially high values of *Betula* and *Pinus* whilst the mixed oakwoods components are immigrating and increasing in abundance.

DISCUSSION AND CONCLUSIONS

It has been shown that the sites of Kunda and the Embachtal in Esthonia, of Svaerdborg, Holmegaard and Müllerup in Denmark, of Skipsea in Yorkshire and of the Leman and the Ower banks off the Norfolk coast of England, have pollen spectra practically identical with one another. From this it follows that in so far as the spread of forest trees into Europe during this phase of post-glacial history was synchronous for Esthonia, Denmark and England, then so far must the cultures of these sites be contemporaneous.

There are two lines of argument which can be brought to bear on this point. In the first place the pollen sequences of Kunda and of Denmark are not merely divided into the Blytt and Sernander climatic periods on a basis of comparison of succeeding forest-phases, but both have been correlated with the common geological standards afforded by the changing levels of the Baltic seas. Thus the Esthonian sequence has been related to the maximal transgressions of the Ancyclus and Litorina seas, and the Danish sequences are related to the same data by their close resemblance to the south Swedish sequences, which have themselves been directly correlated with the beaches of Ancyclus and Litorina times. The validity of the dating attributed to the Danish sequences in this way is confirmed by analysis of the peat submerged in the Sund during the expansion of the Litorina Sea.

In the second place, it has been suggested on archaeological evidence that the Danish sites are older than those of Kunda and of England. If this is so and the age difference is substantial, the similarity of the pollen spectra in the three countries can only be explained by assuming that the forests reached these parts of Europe in the same order as the

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cultures, viz. Denmark first and afterwards Esthonia and England together. The geographical situation of the three countries renders this improbable, for Denmark is intermediate in having a climate less oceanic than England and more oceanic than Esthonia, and in lying south of Esthonia and rather north at least of the Leman and the Ower banks off the English coast. These two lines of argument together suggest that forest development was synchronous in Esthonia, Denmark and England and that therefore the cultures in question were approximately contemporaneous.

A very rough estimate based on an application of De Geer's geochronology* to pollen analytical sequences suggests 500 years as perhaps the maximum range of time allowable within this 'approximate contemporaneity'. It remains for archaeologists to say whether such a period is adequate for the development from Maglemose to Kunda cultures.

These results in any case indicate that the sites in Esthonia, Denmark and England are all Boreal in age (Ancyclus period) and that they are much more closely related in age to one another than any of them are to sites of the Ertebolle cultures which are in the Atlantic period and correspond roughly to the Litorina maximum.

Part of the expenses incurred in the work have been met from a grant made by the Royal Society of London in aid of pollen-analytic investigations of lowland peats.

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* See ANTIQUITY, II (1928), 308-18.—EDITOR.

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FIG. 1. THE SPECIMEN OF THE SUPPOSED ORIGINAL MANUSCRIPT OF RICHARD OF CIRENCESTER'S 'DE SITU' SENT BY CHARLES BERTRAM TO WILLIAM STUKELEY

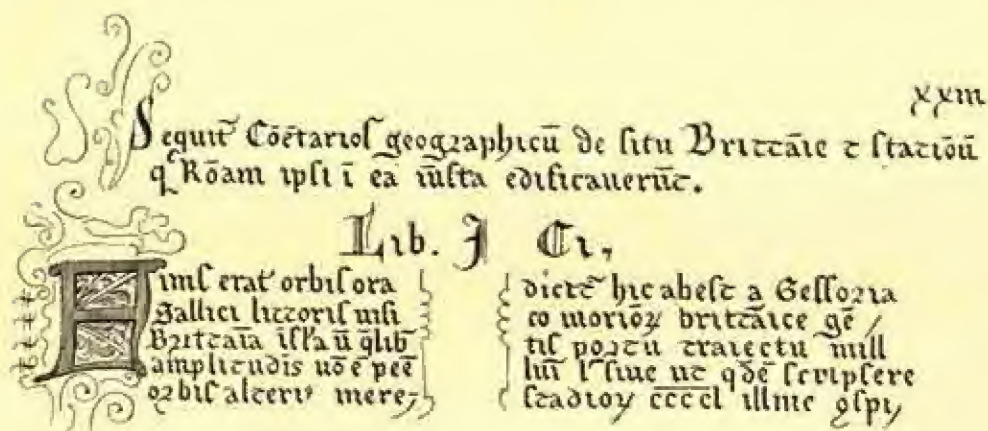


FIG. 2. FROM WILLIAM STUKELEY'S 'ACCOUNT OF RICHARD OF CIRENCESTER' PUBLISHED IN 1757

Splendide Mendax*

by H. J. RANDALL

THIS is not the occasion to discourse of the Art of Lying in general. The subject is too wide for any essay, and the present writer can claim no special competence. Yet, contrary to much generally received opinion, mankind for the most part are extremely bad liars,—not for want of practice, but because of inherent deficiency. This proposition is accepted as axiomatic in the practice of law and in the science of history. Few witnesses can survive a really skilled cross-examination unless they are speaking the truth or a fairly close approximation to it, and the historical witness is in little better case. The difficulties inherent in testimony are immense, but deliberate untruthfulness seldom prevails.

The causes of this grave defect in our mental constitution are want of imagination and defect of memory. It is so difficult for the ordinary, or even the exceptional man, to imagine anything beyond the narrow range of his own experience that most mendacity is merely exaggeration. By general consent the best, or at least the most consistent liars are fishermen and golfers. Yet their stories are little beyond the most obvious exaggeration; exaggeration by expansion in the one case, and by contraction in the other. It is for this reason that an original fishing story, like that of Jonah, has retained its immortality and freshness through the long ages.

The Art of Historical Lying is not in a much better condition and its competent exponents have been few. First, as in duty bound, we must speak of the Church. The monastic cartularies contain numerous false charters, chiefly of the Old English period. They are so well executed that their historical value is only slightly inferior to that of the genuine examples. But the artistic effort required to produce a false charter is not very great. They were merely designed to supply missing links in the chain of title, a very advisable precaution when times were troubled and kings were greedy. The forms were well known and the materials were available, so that to insert a charter in the cartulary where its presence would be helpful was no great matter.

* Translated by Smith Minor, in one of his most inspired moments, as 'lying in state'.

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The Donation of Constantine and the False Decretals were more ambitious efforts. The Donation, whereby Constantine granted to the Popes the sovereignty of Rome, Italy, and the Western Provinces when he retired to Constantinople was a fine dialectical weapon in the struggle for the Temporal Supremacy. It appeared to make the Papacy by right as well as in fact 'the ghost of the deceased Roman Empire sitting crowned upon the grave thereof'.

The False Decretals¹ were a collection of texts made in Gaul about A.D. 850. They were designed to protect the Church from violence, to abate internal abuses, and to promote the temporal supremacy. About half of the collection is forged, but the forgery is little more than tearing texts from their context, and then placing them in the mouths of the early Popes in such form as to give them force of law.

Neither of these forgeries would have deceived a critical age, and the first beginnings of historical criticism at the Renaissance disposed of both.

Of secular efforts, the Letters of Phalaris, which really owe their fame to Richard Bentley, and some of the excursions of Geoffrey of Monmouth, may rank high; but for sustained artistry none can equal our present subject,—Charles Bertram of Copenhagen. A witty Canon once remarked that the guiding maxim of the Dictionary of National Biography was 'no flowers by request', but even the sedate D.N.B. waxes comparatively enthusiastic over Bertram. It calls him 'the cleverest and most successful literary impostor of modern times', and adds that 'the ingenuity and learning displayed in Bertram's forgery are really extraordinary, and fully account for the unparalleled success which the imposture obtained'.

The writer in D.N.B. cites B. B. Woodward's papers in the *Gentleman's Magazine* but he does not mention Mayor's preface in the Rolls Series edition of Richard of Cirencester (1863-9, 2v.). The latter is far more thorough, and corrects certain points in the D.N.B. which may be noted here.

1. Bertram's Copenhagen edition was actually published in January 1758, not 1757. (Mayor, p. xvii). It did not contain an 'elaborate commentary'. Bertram's notes only covered chapters 1 and 2 of book 1.

2. Stukeley did not 'adopt' Bertram's map in the second edition of *Itinerarium Curiosum*, 1776. He died in 1765.

¹ A good critical account is *The False Decretals*, by E. H. Davenport. Oxford, 1916.

SPLENDIDE MENDAX

3. It is unfair to say that the edition of the 'Six English Chronicles' by Dr J. A. Giles (which includes the false Richard of Cirencester) was published in Bohn's Antiquarian Library in 1872 after Woodward's exposure. Originally published in 1848 it was reprinted in 1872.

4. The date of Bertram's death was 8 January 1765. (Mayor, p. cxxiv).

Bertram was born in London in 1723. His father was a silk-dyer, and in 1743 the family moved to Copenhagen in the entourage of Princess Louisa, who married the Crown Prince of Denmark, afterwards Frederick v. In 1748 Bertram obtained a licence to teach English in the Marine Academy, a school for naval cadets, but he never ranked as a professor. In addition to the famous forgery he produced several perfectly innocuous works on English and Danish grammar. He died on 8 January 1765 aged 42, and his protagonist or victim, William Stukeley, two months later (3 March) at the age of 77. As Haverfield remarks 'he had lived eight years too long'.

The story of the discovery is given in Stukeley's *Account of Richard of Cirencester*, p. 12, and also by Mayor in his preface to the Rolls Series edition, pp. CXX-CXXI.

'In the summer of 1747, June 11, whilst I lived at Stamford, I receiv'd a letter from *Charles Julius Bertram*, professor of the *English* tongue in the Royal marine Academy of *Copenhagen*, a person unknown to me. The letter was polite, full of compliments, as usual with foreigners, expressing much candor and respect to me; being only acquainted with some works of mine published. the letter was dated the year before: for all that time he hesitated in sending it.

Soon after my receiving it, I sent a civil answer: which produced another letter, with a prolix and elaborate *latin* epistle inclos'd, from the famous Mr *Gramm*, privy-counsellor, and chief librarian to his *Danish* Majesty: a learned gentleman, who had been in *England*, and visited our universities. (Mr *Martin Folkes* remembered him.) he was Mr *Bertram's* great friend and patron.

I answered that letter, and it created a correspondence between us. among other matters, Mr *Bertram* mentioned a manuscript in a friend's hands, of *Richard of Westminster*, being a history of *Roman Brittain*, which he thought a great curiosity: and an antient map of the island annex'd.

In *november*, that year, the Duke of *Montagu*, who was pleas'd to have a favor for me, drew me from a beloved retirement, where I proposed to spend the remainder of my life: therefore wonder'd the more, how Mr *Bertram* found me out. nor was I solicitous about *Richard of Westminster*, as he then called him, till I was presented to St *George's* church, *Queen-Square*. when I became fix'd in *London*, I thought it proper to cultivate my *Copenhagen* correspondence, and I received another *latin* letter from Mr *Gramm*; and soon after an account of his death, and a print of him in profile.

I now began to think of the manuscript, and desired some little extract from it; then, an imitation of the hand-writing, which I shewed to my late friend Mr *Casley*, keeper in the *Cotton* library, who immediately pronounced it to be 400 years old.

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I press'd Mr *Bertram* to get the manuscript into his hands, if possible, which at length, with some difficulty, he accomplished : and on my solicitation, sent to me in letters, a transcript of the whole ; and at last a copy of the map : he having an excellent hand in drawing.

Upon perusal, I seriously solicited him to print it, as the greatest treasure we now can boast of, in this kind of learning. in the mean time, I have here extracted some account of the Treatise, for your present entertainment : as I gave it to Dr *Mead*, and to my very worthy friend Mr *Gray* of *Colchester*, some time past, at their request'.

On 18 March 1756 Stukeley read his paper before the Society of Antiquaries. It was published in 1757 with the title *An Account of Richard of Cirencester*, and included a reproduction and detailed discussion of the famous map, a full account of the Itinerary with identifications of the place-names, and a plate of the specimen of the MS that Bertram had transmitted. In January 1758 Bertram published at Copenhagen an edition of the false 'Richard of Cirencester' together with Gildas and Nennius. In 1776 a second edition of Stukeley's *Itinerarium Curiosum* was issued which included (vol. II) his 'Account' and Bertram's full text notes and map, but not his preface.²

At this point it may be well to explain that the present writer has been fortunate enough to acquire some interesting manuscripts of Stukeley's. Of these there are three parchment bound quarto volumes, numbered I, III, and V, so that II and IV are missing. No. I is entirely in Stukeley's writing. It is marked 'copyed by Wm: Stukeley May 1749', and contains the text of the 'De Situ' to the end of the Diaphragmata or Itinerary in Lib. I, cap. 7. It seems quite evident that this was the original copy made by Stukeley from the letters received from Bertram. It has additional interest from the fact that pasted into it, immediately following the title-page, is the specimen of the original MS that Bertram forwarded to convince Stukeley. Underneath Stukeley has written the following note :—

'A specimen of the original manuscript of Richard of westminster, on velum, a large sized quarto, the map is on the finest sort of vellum.³ there was another volume containing 22 pages, before it ; which is lost. I suppose, it was that other work which he wrote, the history of Brittain before the Roman times. it was not wrote in the manner of geoffry of monmouth, but fro(m) authentic memoirs, and therefore, its loss is the more to be lamented'.

² It may again be remarked that Bertram's notes only relate to chapters 1 and 2 of Book 1. Apparently the effort to annotate the whole work could not be sustained.

³ There is no copy of the map with these MSS.

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The missing volume 2 probably contained the remainder of the text of the 'De Situ'. Volume 3 is marked on the cover 'Index', but inside 'Comment' on 'Ricordi Westmon'. It is inscribed 'Wm Stukeley 1749 S Geo. Qu Square'. It consists of notes upon the place-names in the 'De Situ' and suggested identifications.

No. 5, dated 1750, is a copy of Richard's Itinerary with identifications of the places. In this Stukeley has sometimes altered his original guess. The Itinerary is followed by 40 to 50 pages of notes and observations. These might be worth printing, because they contain a large number of records of things that Stukeley had seen in various places. He might be credulous, but he was a good observer.

In addition to these mss there is a small volume bound in morocco with Stukeley's bookplate. It contains the complete text of the 'De Situ' in the writing of a copyist, and is interleaved with plain paper for notes. Upon these Stukeley has written headings and a few notes, but nothing of interest or value. Finally the little collection contains Stukeley's own printed copy of the 'Account' of 1757 with a few notes and corrections in his writing.

So much for the manuscripts. In 1809 an anonymous edition was published. This contained Bertram's text and notes, a translation and notes by Henry Hatcher of Salisbury, a reproduction of the map⁴, and a detailed commentary on the Itinerary by Rev. Thomas Leman, F.S.A. Some assistance from other antiquaries, including Sir Richard Colt Hoare, is also acknowledged. This is really the standard edition, because the one in the 'Six Old English Chronicles', prepared by J. A. Giles for Bohn's Antiquarian Library in 1848 is simply Hatcher's translation and notes, and Leman's commentary on the Itinerary, without Bertram's notes or map.

Of the tract itself,—*De Situ Britanniae*—it must suffice to say that the first book contains a geographical description of our islands, with the Diaphragmata or Itinerary inserted at the end of cap. 7. The second book, which comes to an abrupt end, consists of some historical notes, beginning with the Creation. Its attraction lay in the large addition that it purported to make to our Roman names. The map, according to Stukeley, contained 100 names out of 250 'wholly new or ill-placed by former writers'. The Itinerary contained 76 names in the same category. Stukeley's figures are difficult to check, and are

⁴ The map is attributed to Stukeley and dated 1755, but it is Bertram's revised map of 1758, not the map in Stukeley's 'Account'.

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not wholly consistent, but they suffice to show the general effect. His encomium would have been fully justified, if only the work had been genuine.

The fact of the forgery has been demonstrated so conclusively and fully by Woodward⁵ and Mayor⁶ that detailed repetition would be superfluous, but it may be desirable to refer to a few of the points.

1. The original manuscript has never been found, either among Bertram's papers or anywhere else. Bertram always maintained a great air of mystery about it. The most that he would say was that 'it came into my hands in a wonderful way with other curiosities'.

2. The only evidence of the manuscript that Bertram condescended to send was the specimen reproduced in Stukeley's 'Account' and in subsequent editions. It purports to contain the title and opening paragraph of the 'De Situ'. This specimen, which has apparently never been seen since, is contained in the MS books referred to above. It is clear that Stukeley's plate, while fairly accurate, is not a facsimile. It would be tedious to compare the two in detail, but the original makes the fact of forgery more obvious. Not only are the letters quite unlike any genuine MS of the fourteenth century, or any other known form, but the illuminated capital, the flourishes, and the lettering itself are more clumsy in the original. In a word the reproduction has been constructed, and is not a copy.

3. The present manuscripts throw some light upon the ascription of the tract to Richard of Cirencester. Bertram had attributed the tract in the first instance to Richard, a monk of Westminster. This was a perfectly safe shot, because Westminster Abbey must have had many monks who bore the name Richard. Stukeley then pointed out to Bertram that Richard of Cirencester was a monk of Westminster, and Bertram immediately adopted the suggestion. It is quite possible that before he received Stukeley's communication Bertram had never heard of Richard of Cirencester. He could not alter the text without arousing suspicion, but he changed his own title to 'Richard Corinensis Monachi Westmonasteriensis De Situ Britanniae Libri Duo'. Bertram

⁵ *A Literary Forgery: Richard of Cirencester's tractate on Britain*, by B. B. Woodward. *Gentleman's Magazine*, N.S. I (1866) pp. 301, 617; II (1866), 458; IV (1867) 443. Earlier communications on the forgery were printed in the *Magazine* for 1846-7, xxvi, 365 and xxvii, 377, 480; 1853, xxxix, 270.

⁶ *Ricardi de Cirencestria Speculum Historiale*. Edited by J. E. B. Mayor. Rolls Series, 1869, vol. II, preface.

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did not know, but Stukeley did, that the genuine Richard was Ricardus de Cirencestria. The 'Corinensis' was Bertram's own invention, and Stukeley never used it.

In vol. I of our MSS, dated May 1749, Stukeley has added his own title-page beginning with the words 'Ricardi de Cirencestria'. In vol. III, also dated 1749, an internal title begins 'Ricardi Westmonasteriensis' but 'de Cirencest Monachi' has been interlined between the two words. In vol V, dated 1750, all hesitation has disappeared, and he is 'Richard of Cirencester, monk of Westminster'.

4. There are no references in the genuine Richard to the 'De Situ', nor vice versa. Bertram had completed his text before he had heard from Stukeley of the existence of Richard of Cirencester.

5. The genuine Richard never cites an ancient author at first hand. The author of 'De Situ' quotes largely from Latin writers, and even Greek. He cites works that were not known at the time, and has such powers of prevision that he can even adopt the emendations (some erroneous) that eighteenth century editors were to make in the text of Tacitus.

6. In the 'Account' of 1757 Stukeley reproduced the original map that Bertram had sent him. Then (Jan. 1758) Bertram issued his edition in Copenhagen, but in the meantime had materially improved the first draft of the map, and published the improved copy. In the *Itinerarium Curiosum* of 1776 this is attached to the reprint of Stukeley's 'Account' without a qualm or a word of explanation. Yet both are supposed to be copies of the same original. Liars indeed need good memories.

Mendacity, likewise, requires a good foundation. Thomas Wright states the argument in favour of Richard's Itinerary thus:—

'That this Itinerary was not invented by Bertram seems clear from the circumstance that his roads, though they are not always the same as those in Antoninus, have been traced where he places them, and that their existence was certainly not known in Bertram's time'.

The sources of Bertram's information are therefore an interesting question. He could not have obtained it from personal wanderings, because he lived in a foreign country, and it must, therefore, have come from books. The answer has been given with a completeness that could hardly be rivalled in the detailed analysis of the 'De Situ' by

¹ *The Celt, the Roman, and the Saxon*, 1852, p. 459.

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Mayor. Bertram's general method, when he ceased to follow the Antonine Itinerary, was to work upon hints, guesses, and statements in Camden, Baxter's *Glossary* and Horsley's *Britannia Romana*. His main source was Camden, with imaginative suggestions of his own thrown in. A few random examples will illustrate the method.

He invents new forms of names. 'Corinensis', from the ancient Corinium, in place of the medieval Cirencesteria is one instance; and 'Cantiopolis' for Canterbury (Durovernum is the ancient form) is a Greek form added as an extra flourish. Hereri Mons for a station in the Snowdon district is taken from Nennius. Eryri is the Welsh name of Snowdon.

A favourite and easy form of invention was to place 'Ad' before either a word: (Ad Vallum, Ad Murum, Ad Fines); or a river-name: (Ad Tisam, Ad Sturium amnem, Ad Sabrinam); or before a real or assumed mountain name (Ad Alpes Peninos, Ad montem Grampium). When inspiration fails, he will even descend to 'In Medio' for a half-way house. Sometimes he has tripped badly, when using this method. Three stations are named 'Ad Fines', and one of them has been placed near the summit of the Cheviots. Bertram omitted to notice that the present boundary between England and Scotland was not a line of boundary at all in Roman times.

Bibracte was a town of the Aedui in Gaul. Camden conjectured that Bray was so called. Therefore Bertram duly adopts Bibracte as the name of Bray.

The list of 92 municipia, coloniae, civitates Latio jure donatae, et stipendiariae, was quoted even by Gibbon without suspicion. The whole system of classification has been lifted from Pliny's account of Spain in his own time, and the names have been added by Bertram as the fancy moved him.

A more satisfactory idea of Bertram's method, and likewise of his genius, will be gained by running through one of the routes in the Itinerary. Iter xi* has been selected as most familiar to the present writer.

It runs 'Ab Aquis, per Viam Juliam, Menapiam usque'. (Bath to St. Davids). Bertram arrived at the Via Julia in this manner:—Camden, when writing of Isca (Caerleon) and the nearby town of Newport, had quoted some verses containing the words 'Julia Strata' from Alexander Neckam, a poet of the thirteenth century. Camden

* *The Description of Britain*, London, 1809, p. 144.

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added the comment, 'it is beyond doubt that this Julia Strata was a road'. Bertram adopts this and so creates the Via Julia. A later genius, who should be immortalized but whose name is unknown, improved upon Bertram most brilliantly. He distinguished two Via Julias, and called the South Wales coast road Via Julia Maritima, and another road going northwards through Gelligaer, Via Julia Montana. These beautiful inventions have appeared on the Ordnance Survey maps up to the present time. They really deserved to be true. The prosaic fact is that we do not know the ancient name of any Roman road in Britain, nor do we know whether they had any names.

Bertram's Iter XI has been constructed by cutting into the Antonine Iter 'Ab Isca-Calleva' at Bath (Aquae Sulis) and then going backwards to Isca (Caerleon). From Isca Bertram again works backwards along part of the Antonine route 'A Mariduno-Viroconium' with additions and omissions.

AD ABONAM VI, the Abone of Antoninus misplaced.

AD SABRINAM VI, a Bertram invention.

STATIONEM TRAJECTUM III, the Antonine Trajectum taken from its proper place, and transferred to the other side of the Severn estuary, with an imaginary distance from the last invented station.

VENTA SILURUM VIII, Caerwent, as in Antoninus. The mileage is the Antonine distance from Abone.

ISCA COLONIA VIII UNDE FUIT AARON MARTYR, Caerleon. The distance is taken correctly from Antoninus. Caerleon was never a colony. The 'Aaron Martyr' frill is derived from Giraldus Cambrensis as quoted by Camden.

TIBIA AMNE VIII* meaning the river Taff.

Bertram seems to have taken the name from Camden and Baxter's commentaries, or Ptolemy, and then invented a station. In Stukeley's MS notes it is identified as Llandaff in the 1749 volume, and as 'Caerdyff' in 1750. The astonishing fact remains that we now know of the existence of a Roman fort of the Saxon shore type at Cardiff. Stukeley did not know this, much less did Bertram, but a lucky shot has hit the mark.

BOVIO XX. The position of this fort has never been identified. Antoninus gives the distance of Bomio as XXVII mp. from Isca. Bertram therefore, according to the manuscript, but not the printed reading, has divided the Antonine distance by the insertion of Tibia Amne at

* This distance is given as VIII in the printed copies but in the MS it is VII.

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vii mp. from Isca. Camden confused numberless successors by reading the Antonine Bomio as Bovio (in which Bertram dutifully follows him) and then identifying it as Cowbridge. As Haverfield remarked 'It is a mercy that he was not attracted by the names of Oxford, Cowley, and Bullingdon to place "Bovium" on the Isis'.¹⁰

NIDO XV and LEUCARO XV are the same as in Antoninus.

AD VIGESIMUM XX. Bertram now involves himself in hopeless confusion. The distance from Leucarum (Lougher) is the same as the Antonine distance of Carmarthen (Maridunum) from Lougher.

Stukeley was evidently very puzzled because in the notes of 1749 he identified Ad Vigesium as Narberth Castle but in 1750 it has become Maridunum. The correlation with Maridunum makes the distance to St. Davids an absurdity. The best explanation appears to be that Bertram overlooked Maridunum but thought that he had included it. Upon this supposition (*i.e.* that the xx mp. is the distance of Ad Vigesium from the omitted Maridunum, and not from Leucarum as stated) the facts are rather remarkable. Richard Fenton published his *Pembrokeshire* in 1811, and for the first time recorded a small Roman fort between Carmarthen and St. Davids. It is the earthwork known as Castle Flemish, Ambleston. Neither Bertram nor Stukeley could have known of this and, as we have seen, Stukeley flounders about in his attempts at identification.¹¹

The supporters of the 'De Situ' could point to this instance of accurate knowledge previously unknown as a vindication of Richard of Cirencester and his undisclosed sources. Was it then just a lucky guess? The explanation I suggest is this.

Bertram in all probability used Gibson's edition (1695) of Camden. There Gibson records¹² that in 1692 two shepherd boys had found a hoard of Roman coins at the entrance of the camp called the Gaer in the parish of Llanboidy. Lluyd communicated the information to Gibson, and sent him a list of 24 of the coins as well as a short description of the camp. Knowing Bertram's methods the inference is strong that this foundation was quite sufficient for the creation of *Ad Vigesium*. The name is one of Bertram's favourite forms when he could not think of anything more appropriate. Similar forms (*Ad Decimum*,

¹⁰ *Roman Occupation of Britain*, 1924, p. 70.

¹¹ The site is unquestionably Roman. See R. E. M. Wheeler, 'A Roman site in Pembrokeshire', *Arch. Camb.* LXXVIII (1923), 211-24.

¹² Col. 605. Also in Gough's edition of Camden, 1806, III, 140.

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Ad Sextem, etc.) occur in the Antonine Itinerary, but not, as it happens, in Britain.

AD MENAPIAM XVIII. Menevia was the ordinary medieval name for St. Davids. The Menapii were a North Gallic tribe. Bertram appears to have considered that Menapia would sound better than Menevia.

Of the evil influence of Bertram's forgery it would be tedious to speak at length, especially as Mayor has set out the evidence in abundant detail. As Haverfield says¹² :—

'The forgeries of Bertram have been taken as gospel by many subsequent writers, and they have frequently been repeated by men who knew that Bertram was a forger, but did not know that they were repeating Bertram's fiction. Almost all that was written on Roman Britain between 1757 and the middle of Queen Victoria's reign is tainted from this source. Inquirers have been set on wrong tracks, and attention has been diverted into wrong channels'.

The local historians, from John Whitaker who wrote of Manchester in 1771, until 1870 and even later, have found in the false Richard of Cirencester a mine of information to supplement the deficiency of records and to flatter parochial pride. The bearers of greater names have also fallen victims to the ingenuity of Bertram. Even Gibbon quoted the famous description of the cities in his first volume, but in the second he became a little doubtful and spoke of 'the feeble evidence of Richard of Cirencester'. Others had neither doubts nor suspicions. Gough (the last editor of Camden), General Roy, Lappenberg, Lingard and Charles Roach Smith all treated the authority of the 'De Situ' as unquestionable. Unfortunately Johnson was not interested in history, or he might have dealt with Bertram as he dealt with Macpherson, and have saved English antiquaries from masses of useless labour and still more useless speculations.

There were indeed some early doubters, like Thomas Reynolds in his *Iter Britanniarum* (1799) and T. D. Whitaker in his *History of Whalley* (1801); but it was not until 1827, 70 years after the publication of the 'De Situ', that John Hodgson the great historian of Northumberland, clearly denounced it as a forgery. Then in spite of Lappenberg and Lingard the volume of criticism grew, until Woodward and Mayor proved the case 'beyond a peradventure'.

At the present day our view of Bertram differs from that of Woodward and Mayor. They were righteously angry; we can afford to laugh. They were vexed at the immense harm that Bertram had done to the study of English archaeology; we can appreciate the genius that

¹² *Roman Occupation of Britain*, p. 78.

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perpetrated the great joke. Woodward and Mayor, speaking with the scholarship of the nineteenth century, could say that his Latinity was of his own day, not medieval; that his knowledge was defective, and his sources a hodge-podge. But these things were not apparent at the time.

Hatcher, who was no incompetent antiquary, becomes almost lyrical on the subject in his preface to the edition of 1809, written 50 years after 'De Situ' was first published.

'To the general fidelity of Richard I am happy to bear unequivocal testimony . . . If then we find him thus exact in those cases where we have the means of bringing his fidelity to the test, with what justice can we charge him with deception in the use of those authorities which have not reached our times? . . . He aspires only to the humble honours of a compiler; he makes no mystery of his authorities; . . . he displays that unaffected candour, which never accompanies a conscious deception, and represents his pursuits as the innocent recreation of a vacant hour, but discountenanced and thwarted by his superior. We appeal to every candid and unprejudiced mind, whether a man in such circumstances, and with pretensions so modest, could have either the inducement or the inclination to incur the guilt of deception or forgery'.

Now that the forgery is apparent we can appreciate the artistic effort that created it. The able critics who exposed it gave no credit to Bertram for the skill with which the diverse sources were woven together to make a presentable whole. The beauty of the thing is nowhere more obvious than in Bertram's notes, which were not reprinted after the edition of 1809. In one place, he points out a misquotation in his own forgery, 'Errat hic Ricardus', and in another he remarks 'I do not see how our monk rushed into this wonderful calculation, as I can find nothing else like it'. Could the very breath of suspicion be more effectively blown away.

But the best evidence of Bertram's genius is the long success of his fabrication. He was no medieval forger working at a time when the written word was almost sacrosanct, but he imposed upon the age of reason itself, the period of Gibbon and Johnson and Adam Smith. It was 70 years before he was first found out, over 100 before he was effectually demolished, and his influence has hardly ceased in our time. Not until the consulate of Crawford did Bertram's names begin to disappear from the Ordnance Survey maps. One wonders if Bertram could have imagined as he worked in his study at Copenhagen about 1747 that in the twentieth century the names that he was inventing would still appear on the official maps of England. We can ignore his work, but we can salute his genius, and can say that of all historical liars he deserves most fully the title of 'Splendide Mendax'.

PLATE I

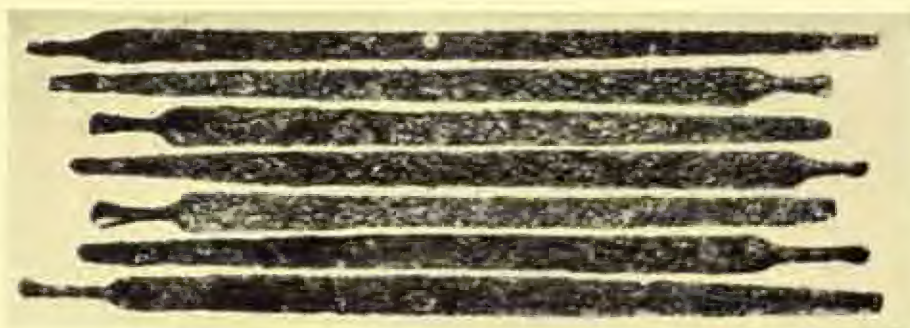


FIG. 1. IRON CURRENCY BARS FROM HOD HILL, NORMAL TYPE

Currency Bars and Water-Clocks :

The Verdicts of Archaeology Reviewed

by E. WYNDHAM HULME

I WAS first led to question the soundness of 'the Iron Currency Bar' theory when investigating the early history of iron-making in the Forest of Dean—the district from which it is generally accepted that these bars emanated. If the 'Currency Bar' theory is well-founded, the inference is unavoidable that the Celtic tribes who used this form of currency were a race endowed with a very low mentality—but this inference is not supported by recent archaeological research.

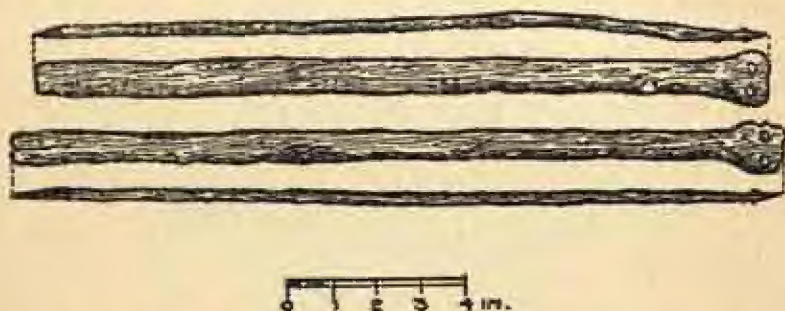


FIG. 2. IRON CURRENCY BARS FROM WAYLAND'S SMITHY, BERKSHIRE
An unusual type. For the normal type see fig. 1

Mr Hilaire Belloc has said 'the more obvious a thing is the more glory there must be in denying it', but there is nothing obvious in the above theory beyond its improbability and the unfamiliarity of its advocates with the elementary practice of smithing. For Mr Reginald Smith's theory requires us to believe that these sword-shaped bars with their rudimentary socket-handles (figure 1) are finished articles which constituted in certain parts of Britain the Celtic system of currency.

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The system comprised six weight denominations ranging from the quarter to the quadruple unit, as follows :—

PRESUMED STANDARD WEIGHTS ¹

Denomination	Grains	Grammes	Avoirdupois
Quarter-unit —	1192	77.4	2¾ oz.
Half-unit —	2385	154.8	5½ oz.
Unit —	4770	309.7	11 oz.
Unit-and-a-half —	7155	464.6	16½ oz.
Double Unit —	9540	619.4	22 oz.
Quadruple Unit —	19080	1238.8	44 oz.

N.B. The most common is the double unit.

There is no correlation in these standards between length and weight, which is remarkable, for in metallic currency one expects to find increase in value characterized by some increase in its superficial area ; but here the longer bar is frequently the lighter of the two.²

It is clear, therefore, that we are intended to believe that the correlation lies between weight and value, *e.g.* if the double unit denomination bar is the value of a two year-old cow one of the quadruple unit would buy two. But when Mr Reginald Smith is confronted with a bar, the weight of which (11484 grains or 26½ oz.) falls between the double and quadruple unit, he makes the following astonishing statement. ‘This excess of virtue [*i.e.* weight of metal] need not disconcert us. As Professor Ridgeway [in his *Origin of Metallic Currency*, p. 262] says, all primitive peoples estimate the value of copper or iron currency by measurement rather than by weight ; and this particular specimen is just under the average length’.³ But Prof. Ridgeway also says (*op. cit.*, p. 3). ‘It is difficult to conceive any people, however primitive, employing two standards at the same time which are completely independent of each other’.

The objections to the Currency theory, other than those already brought forward, may be summarized as follows :—

- (a) No similar graduated system of weight-currency based upon conventionalized forms of the same wrought material is recorded in any country.
- (b) No similarly-shaped bars have been found with contemporary grave-furniture

¹ From *British Museum Guide to Early Iron Age Antiquities*, 2nd ed., 1925, p. 165, where illustrations of bars of 1, 2, and 4 units are given.

² *Proc. Soc. Antiq.* Ser. 2, xx, 1905, p. 185.

³ *Ibid.* p. 190.

CURRENCY BARS AND WATER-CLOCKS

- (c) The system is not known to have existed in the continental regions from which the Celtic tribes are known to have come.
- (d) At Tiefenau, near Berne, a long-tanged sword-shaped bar is found with a quantity of early Gaulish coins.
- (e) The system disappears from Britain with suspicious suddenness at a period when the possession of weapons in any stage of their manufacture would have entailed serious consequences upon the offending tribe.
- (f) No tradition of buried treasure has attached to the sites where these large hoards of bars have been found.
- (g) The so-called socket-handle is an impossible element in a conventionalized and finished article.
- (h) The Celts at the time of Caesar's raids were in possession of many forms of tanged cutting implements. It is not necessary to assume that the bars of the six weight denominations represent six forms of early British swords.

Provisionally, therefore, it may be accepted that the Currency Bars are bars in the intermediate or interrupted stage of working which always occurs in smithing practice. As such they are not likely to have been seen or described by Caesar or to have functioned in ordinary commercial transactions, though it may have been the practice of the forges to send them out for the local smiths to finish.

Let me now turn to the subject of smithing—an art which, owing to its extensive ramifications, makes a search through its literature in quest of the generalized information required by the archaeologist particularly difficult. Landrin, for instance, in an interesting preface to his *Manuel du Coutelier*, 1835, frankly admits the impossibility of including in his work all the traditional practices of the blade-smith which even the monumental treatise of his predecessor Perret had omitted. Still, sufficient can be gathered from the literature to remove the only objections of weight which can be urged against the theory that these sword-shaped bars with pinched-in ends are tanged sword moods or moods of other cutting implements.

The hand-forger of iron or steel has from the earliest recorded times worked in stages determined by the time taken by the white-hot iron to cool to a heat at which forging becomes impracticable. These stages or heats may be grouped as follows:—

- (a) 'Mooding', *i.e.*, moulding the heated bar approximately to its desired shape.
- (b) Smithing, *i.e.*, drawing out and finishing the implement to its final shape and length. The effect of smithing is always accompanied by an extension of the 'mood'.

These two operations are carried out by the same workmen on the same anvil but are not continuous. 'Mooding' proceeds until a

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sufficient stock of 'moods' has been accumulated, when the 'moods' are reheated and finished—work always beginning with the tang and shoulder of the 'mood' and finishing with the blade. Grinding to an edge completes the process so far as the blade is concerned. John Holland, of Sheffield, who wrote the *Treatise on the Manufactures in Metal* for Lardner's Cabinet Cyclopaedia, is a good authority on the subject. Dealing with the manufacture of hand-forged forks he says (vol. II, p. 23): 'The fork is reduced, as usual, from the rod of steel into something of the following figure (not shown here)—the tang, shoulder and shank being roughly forged, and the blade as it is called left thick and whole. In this state it is called, in common with all articles after the first formation by the hammer, a mood (mould)'.

For the benefit of metallurgists who are not archaeologists, and of archaeologists who are not metallurgists, the following data on the evolution of the Celtic sword, and the general principles of its manufacture may be acceptable.

Fig. 4, taken from von Sacken's *Das Grabfeld von Hallstatt*, pl. 5, shows the close resemblance of the Hallstatt iron sword to its bronze predecessor and contemporary (fig. 3). The contours of the iron blade must have been difficult to produce without extensive grinding. The Hallstatt sword was a luxury article. The softness of its blade and the weak union of the blade and handle must have made it an untrustworthy weapon in the battlefield. Forrer, the leading continental authority on sword making, notes the advance in the technique of sword manufacture in the La Tène period. A straight blade is substituted for the flowing contours of the Hallstatt weapon. The blade is forged thinner. The entire weapon is constructed on lighter lines, and a substantial tang runs through the grip. Forrer states that the elasticity of some of these continental blades is such that they can be twisted spirally 3 to 4 times without breaking.

Mr Reginald Smith¹ furnishes further particulars. Quoting De Reffye, from Keller's *Lake Dwellings*, he says 'the cutting-edges are not of the same iron as the body of the blade. The workman, after having forged the latter out of very tough, fibrous iron . . . welded on each side little strips of soft iron to form the cutting-edges'. Of greater importance is the statement of Vouga,² quoting the opinion of an expert, that one at least of the swords bearing a maker's mark 'is

¹ *Proc. Soc. Antiq. Ser. 2*, XXVII, 1914-15, p. 108.

² *Les Helvètes à La Tène*, p. 35.

PLATE II



FIG. 3

FIG. 4



FIG. 5

FIG. 3. BRONZE SWORD (HALLSTATT). BLADE 2 FT. 3 IN.

FIG. 4. IRON SWORD (HALLSTATT). BLADE ABOUT 3 FT.

From von Sacken's Das Gräbfeld von Hallstatt

FIG. 5. IRON SWORD (LA TÈNE), WITH PORTION OF IRON SCAUBARD ADHERING.

The short sword with anthropomorphic bronze handle serves in its place. Blade about 2 ft. 6 in.

From Mortimer's Researches in Burial Mounds of East Yorkshire

PLATE III



FIG. 6

ROMAN COPPERSMITH'S WORKSHOP

A sheet of soft metal is being hammered to shape on a wooden round. Note the round-headed hammer. On the right a vessel is being polished by hand. A relief in the Naples Museum.

From Neuburger's Die Technik des Altertums, fig. 37



FIG. 7

GREEK SMITHY

From 5th cent. B.C. Attic Vase from Orvieto, on the left the hearth; above various smiths' tools, drillbit, hammers and water-jug. In Boston Fine Arts Museum.

From Neuburger's Die Technik des Altertums, p. 52, fig. 37

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made of *acier corroyé* (steel formed by hammering several strips together), which though not very hard is extremely tough and gives a very sharp edge'. Vouga proceeds: 'as the lake-dwellers were not conversant with present methods of producing steel, the blade has split in several places and is seen to consist of several layers one over the other'.⁴

English technologists will accept the observations of these Continental authorities without necessarily endorsing their conclusions. A Birmingham metallurgist, for instance, has suggested to me the following alternative solution. 'The smiths', he says, 'learned by experience that the thinner the blade was forged the more rapidly it became hardened when heated in a charcoal fire and subsequently quenched. Consequently they hammered their edges thin, doubled and welded them together, and finally tempered them by heating and quenching'. Prof. C. Desch of the National Physical Laboratory substantially confirms this statement. He writes:—

'It is difficult to believe that the practice, common in later times, of welding a hard steel edge on to a soft iron back, was practised in prehistoric or very early times. It is more likely that the iron, forged into shape, was hardened on the edge by exposing it to charcoal in the fire and then quenching. The Japanese method of covering the sword with clay, removing the covering from the edge, and then heating in charcoal to carburize the edge, is a refinement of this method. That ancient swords often show alternations of hard and soft metal is likely enough when the nature of the bloomery process is considered. The heating is necessarily unequal, and whilst some parts of the mass become almost pure iron, others may retain an appreciable quantity of carbon. This is true even of modern iron made in the Swedish Walloon hearth'.

The constitution of pure wrought iron is not substantially changed by heating and quenching; that is the property of steel. Hence unless bloomery iron contained a considerable percentage of carbon in its constitution, or was subsequently carbonized, heating and quenching would have had little effect. It is, however, improbable that the Celts anywhere left their blades untempered, though, as Vouga has pointed out, different qualities of blade were already being manufactured at this early period.

Moxon, in his *Mechanic Exercises*, 1661, refers to an old saying:

'He that will a good Edge win
Must Forge thick and Grind thin'.

⁴Quoted by Mr Reginald Smith. *Proc. Soc. Antiq. Ser. 2*, XX, 1905, p. 108.

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As this procedure would involve a waste of material without any countervailing advantage some technologists have expressed a doubt as to the truth of the tradition. But the old saying must be interpreted solely in relation to contemporary practice. It is a warning to the smith to leave plenty of metal for the grinder to work on—as would be needed in razor-grinding, surgical instruments, etc.,—where the sides of the blade were slightly hollowed by grinding. The adage therefore would have no reference to early sword making where the loss of metal would be mainly due to repeated forgings.

The earliest reference to the practice of blade-smithing is to be found in the Scholiast's note on the Argonautica of Apollonius Rhodius (v. 761), and its importance lies in the fact that it is a quotation from the lost treatise of Pytheas of Marseilles which is generally dated as c. 330 B.C. It runs as follows :—

Ἐν τῇ Λιπάρᾳ καὶ Στρογγύλῃ (τῶν Αἰόλου δὲ νήσων αὗται) δοκεῖ ὁ Ἥφαιστος διατρίβειν. Δι' ὃ καὶ πυρὸς βρόμον ἀκούεσθαι καὶ ἤχον σφοδρόν. Τὸ δὲ παλαιὸν ἐλέγετο, τὸν βουλούμενον ἄργον σίδηρον ἀποφέρειν (ποτε probably ἐπιφέρειν) καὶ ἐπὶ τὴν αὐρίον ἐλθόντα λαμβάνειν ἢ ξίφος ἢ εἴ τι ἄλλο ἤθελε κατασκευάσαι, καταβαλόντα μισθόν. Ταῦτα φησὶ Πυθέας ἐν γῆς περιόδῳ λέγων καὶ τὴν θάλασσαν ἐκεῖ ζεῖν.

TRANSLATION

In Lipara and Strongyle (these are some of the islands of Aeolus) Hephaestus is thought to dwell. Hence here can be heard the thunder of fire and violent noises. Of old it was said that any man who would bring unworked¹ iron could call the next morning and take away the sword or what else he had ordered, provided he put down the proper fee. So says Pytheas in his descriptive geography (i.e. the *Periplus*) stating that there the sea boils.

It is remarkable that this passage should have been overlooked by all historians of the iron manufacture—for it opens so many avenues to research—besides forming the basis of the Wayland legend. It is, however, to be found in Depping and Michel's *Wayland Smith* (Pickering, 1847), an excellent monograph, which in its turn has been omitted from the extensive bibliography appended to Miss K. M. Buck's edition of the Icelandic Sagas. Pytheas is, of course, a good authority. The practice which he notes in Sicily c. 330 B.C. indicates that the smiths already worked in two stages, for the feature in the

¹ I have translated ἄργον as 'unworked' on the ground that iron is never described as 'bright' in Greek writings. Its usual attribute is 'black', 'gray' or 'violet'. The description, however, 'bright or glittering' would not be altogether inappropriate if applied to meteoric iron.

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legend which excited the curiosity of antiquity was the fact that the smith could produce the finished article on the following morning with the promptness of the modern undertaker. Further it indicates that in pre-Roman times the forge of Vulcan was primarily the workshop of military weapons and armour. The industrial applications of iron-forging are later developments of the blade-smith's and armourer's art—though largely based upon the same technological practice.

I now come to the well-known description of Britain in Caesar's Commentaries (v. 12). The *apparatus criticus* was set out at length by Mr Reginald Smith in 1905 with his customary ability. Hence I propose to deal only with the reading *taleis* and the question of the translation of the final phrase. The passage with its variant readings runs as follows :—

* Utuntur aut aere aut nummo aureo aut { anulis
aliis
taleis
ferreis ad certum pondus examinatis pro nummo '.

The readings *anulis* and *aliis* are from the α group of MSS, but *taleis*, derived from the β group appears now to be the accepted reading.



FIG. 8

As Mr Reginald Smith says, the reading of the text has been settled by archaeologists, and this statement at once raises a doubt whether due weight has been given to philological reasoning. The whole of chapter 12 is regarded as an interpolation, probably prepared by a military reporter for Caesar's use. The construction of the sentence is, and must remain, incorrect and inelegant, but not more so than might be expected in a narrative condensed from rough memoranda. As *aliis ferreis* is inadmissible the choice lies between *anulis* and *taleis*.

Now *talea*, though a word of uncertain origin, is firmly established in Latin and in languages derived therefrom. The word must have brought before the minds of those who used it a very clear picture of its significance, viz., the long-shaped cut such as is found in notch-grafting on the scion prepared for insertion into the stock. (Fig. 8). In this sense it is applied to the short stout posts with sharpened ends, a foot long according to Caesar, employed as a defence against cavalry attack; to the lighter stakes, sharpened at both ends, used by the charcoal-burners to form a wattle-and-daub covering for their piled loppings, and to the wands used by surveyors to obtain an

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alignment. In the English tally we still find the long cut by which identification of the twin parts is secured—not the short ratchet-cuts which register the value of the account. Neither in Latin nor in the Romance languages is there any instance of the application of the word to metallic commodities. Nor can any resemblance be shown between the sharpened wooden *taleae* and the British blunt-pointed iron sword-shaped 'moods', except that both are oblong.

On philological grounds, therefore, the reading *taleis* is doubtful. Caesar, who uses it in the technical military sense as a caltrop, could never have applied it to an iron sword-blade in the intermediate process of its manufacture.

Prof. A. E. Housman has kindly furnished me with the data for the various MS. readings. His note printed below* explains the rejection of the *anulis* reading, for this appears only in one MS. of the *a* group. The reading *aliis* has much stronger support. Beyond this I must not venture to go, but for the purpose of furnishing a translation of the phrase *ad certum pondus examinatis pro nummo* I will combine the two readings and render the sense of the passage as follows, viz., that iron rings and other forms of iron were used as currency when their weight was definitely established. This version harmonizes Caesar's statement with the universal practice of the metal trades. Mr Reginald Smith, however, translates the phrase *ad certum pondus examinatis* as 'graduated according to a fixed weight standard', i.e., the bar was weighed before it was mooded or smithed. I do not dispute that his translation is admissible, but it lands its supporters in difficulties which my version avoids. For how could the smith weigh a portion of his bar until he had cut it off? If he used bars of standard section how is it that there is so little correlation between length and weight? The loss of metal at every heat made the use of the balance superfluous. In other industries where scales were essential these are shown in iconography, but in illustrations of smithing practice they are not found. (Figs. 6-7). Iron was, no doubt, sold by weight. My point is that it was never made to weight.

* 'utuntur aut aere aut nummo aureo aut aliis ferreis ad certum pondus examinatis pro nummo'.

Aureo, aeneo

aliis *a* and 2 MSS of *β*, *taleis* 2 MSS of *β*.

anulis 1 MS of *a*, *pro nummo* *a*, omitted by *β*.

(Signed) A. E. H., 3 Nov. 1932.

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Whether Mr Reginald Smith's identification of certain bronze vessels of culinary form with Celtic water-clocks, possibly connected with Druidic time-measuring methods,⁹ is not known to the present writer. Hitherto they have been treated as culinary vessels. The resemblance will be seen by comparing Déchelette's hanging cauldron (fig. 9) with Mr Reginald Smith's examples, figs. 6-15 in the above paper. They are frequently found patched like our modern laundry coppers, and some appear to have served this purpose.



FIG. 9.
CAULDRON AND CHAIN
SUSPENSION
From Déchelette's *Manuel*

Wright¹⁰ refers to three bronze kettles now preserved in the Museum at Newcastle 'of extremely thin metal so that they would readily feel the fire . . . One of them has three feet to stand upon'. Déchelette concurs in this explanation. He says:¹¹ 'La ténuité des parois permettait d'y faire bouillir l'eau très rapidement'. According to the same authority these culinary vessels emanated from a common centre not yet ascertained. The trade in them was international and they are probably of Greek workmanship. Hence it is appropriate that they should be found, as at Wotton and Sturmere, carefully packed together. There is a fine example of a bronze bowl with iron collar and ring from Gärdsby, Öland, illustrated by Nihlén¹² (p. 139), but I can find no description of it in the text. Mr Reginald Smith ignores this explanation. He claims as Celtic water-clocks operated on the percolating principle all perforated vessels of the culinary type whether their walls are left of reasonable thickness or are hammered thin. It is curious that he should have adopted the percolating principle, for Dr Fleet's paper,¹³

⁹ *Proc. Soc. Antiq.*, Ser. 2, xxvii, 1914-15, pp. 76-95; *British Museum Guide to the Early Iron Age*, 2nd ed., 1925, pp. 162-4.

¹⁰ *The Celt, the Roman and the Saxon*, 6th ed., p. 403.

¹¹ *Man. d'Arch.* III, p. 265.

¹² J. Nihlén, *Studier rörande äldre svensk järntillverkning*, etc. (Stockholm, 1932). An English translation of this important work is greatly to be desired.

¹³ *Jour. Royal Asiatic Society*, 1915, pp. 213-30.

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to which he refers, is written to prove that the more ancient form of Indian water-clock was operated on the opposite principle, viz., that of emptying itself in the course of a defined space of time. The apparatus was simple, but based on scientific considerations. The quantity of water was defined and the diameter of the orifice perforated by a gold wire was determined by the specification of the length and weight of the wire.

In the second place it is doubtful whether, with one exception—a unique vessel of fairly stout bronze with straight sides and radial ribs, possibly a fat-rendering vessel—any of Mr Reginald Smith's bowls would float without some external support. Their iron collars, straps and rings would tend to make them top-heavy. They would heel over and sink in a most unphilosophical manner. The water-clock theory, however amended, appears to be hopelessly improbable. No philosophical instrument maker would have followed culinary forms so slavishly, or have indulged in such a variety of types and sizes, or have designed a gong with a frying-pan handle.

It is pleasant to find myself for once in agreement with Mr Reginald Smith. His discoveries as to the weight relations of these culinary-type vessels deserve careful consideration. His results must be accepted without reserve. His weights are given, no doubt, with proper corrections, and there is no question of 'averaging' to leave a loophole for doubt. We may hope that his work will be extended to include the ascertained weights of foreign specimens, whether perforated or not, for if Déchelette is correct they all come from a common centre. In the meantime what explanation is forthcoming of the results obtained? For this purpose I suggest the following provisional solution.

The coppersmith at this period of the Roman occupation of Britain bought or received his ingots cast in the scale of weights outlined by Mr Reginald Smith. By the custom of his trade he used the whole of his metal for each vessel as he had to account for it to his client, as indicated in fig. 6. With the methods he employed, viz., cold-hammering, annealing, planishing and burnishing, there would be no appreciable loss of metal. Nor would he be unduly restricted in the variety of his shapes and sizes. Vessels of identical weight could be produced widely differing in design and construction, though there would be some tendency towards standardization. In other words, the coppersmith did not cut out his circles from a rectangular sheet of copper or bronze, but worked from the ingot through the sheet to his

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desired object. This solution, though offered only as a temporary explanation of Mr Reginald Smith's weight relations, appears to me not unreasonable, for it is clear that in the case of the precious metals the balance was always employed at some stage or other.

Let me now turn to the weight relations of the so-called iron currency bars. Mr Reginald Smith's standards are based upon the method of averaging—a method denounced by Prof. Ridgeway¹⁴ in no measured terms. When the figures upon which the averages are based are examined it will be found that great latitude has been exercised in assigning specimens to a given unit-class. Amongst those, for instance, of double-weight standard (9540 grains) the extremes are 11484 grains (Hod Hill) and 6726 grains (Spettisbury). Some correction must be made, no doubt, in both instances, for the condition of the two specimens. In length the extremes are 21 and 34 inches respectively. Is it not apparent that in the double-weight class we have a short heavy dagger mood (Glastonbury, 21 inches, 9098 grains) in a crowd of sword moods, the blades of which when finished would measure from 30 inches upwards. Moreover to these classes thus liberally determined there are exceptions. Dr J. Newton Friend, a warm supporter of Mr Reginald Smith's theories, provides an instance from the Worcester Museum¹⁵ 'the *only* well-preserved example found in Worcestershire'. The length of the specimen is 12.72 inches, the weight 1933 grains. Hence it stands about half-way between the $\frac{1}{2}$ and $\frac{1}{4}$ unit-classes.

The theory that mooded bars of sword-shape with rudimentary tangs or with perforated wings for rivetting, the weights and sizes of which so obviously indicate different designs in the finished implements, were intended for currency purposes, is one which technologists will not lightly accept.

Mr Reginald Smith's train of reasoning was probably fired by the discovery of the Glamorgan standard weight (4770 grains, or 11 oz.) and this has led him to constitute his series of unit weight denominations and to classify the bars by weight considerations only. A more rational classification, I submit, would have been to have accepted the old theory that these bars are half-manufactured articles and to have grouped them by a correlation of their length, weight and thickness dimensions—with the object of ascertaining their ultimate purpose. Herr J. Nihlén¹⁶ describes the Swedish sword and scythe moods as

¹⁴ *op. cit.* (in text, p. 62), p. 218.

¹⁵ *Trans. Worcs. Naturalists' Club*, 1918-22, pp. 103-4.

¹⁶ *op. cit.*, p. 207.

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'eine Art halbfabrikat welches anscheinend als Münzen zur Anwendung kam'. He occupies, therefore, a middle position—but his acceptance of these bars as a form of currency is surely weakened by the fact that they are 'mit Schneide versehenen'. The circumstances under which they have been found in Sweden correspond almost exactly with those ascertained in this country. I do not suggest that with my proposed classification it would in all cases be possible to identify the moods with their final form—but with the Bigbury and other finds of iron goods of all descriptions it would be a comparatively simple matter to allocate the great bulk of them.

To resume—the objections to the old theory that these bars of sword-shape are half-manufactured tanged cutting implements have been shown to be groundless. It has always been the practice in forging to accumulate moods before proceeding to smithing. In smithing there is always a loss of metal proportionate to the number of heats to which the mood is subjected. Finally if the moods were bought up by merchants or convoyed by swordsmiths to the local centres this was done because it was a more convenient arrangement than finishing them at the forges. The careful packing of the moods, point to socket, in boxes or crates to avoid injury in transit, suggests that they were buried in much the same condition as they were sent out. When committed to the ground the risk of detection was small. The Celtic tribes looked forward to the recovery of their freedom in the near future. As their hopes waned, the secrets of their burial sites died with the undertakers.

In concluding this somewhat polemical article may I express the hope that Mr Reginald Smith will recognize that some of his theories are of an extremely provocative character and need a correspondingly vigorous treatment. The indebtedness, however, of all metallurgists to him for his laborious investigations, extending over a quarter of a century, in ascertaining the distribution, dimensions and weights of these moods and vessels is beyond all question. Whatever theories as to their purpose may in future prevail their foundations will be found to have been laid upon the exact measurements which we owe to him and for which we are profoundly grateful.

My acknowledgments are due to Major E. A. Marples for valuable help in preparing the account of smithing practice; to Prof. C. Desch for permission to print an extract from one of his letters; and to several members of the Newcomen Society for kind suggestions and advice.



T. vulgare
different types

T. durum

T. dicoccum
ear and spikelets

Triticum dicoccoides
Part of ear and two spikelets

The Origin of Cultivated Plants

by A. E. WATKINS

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MOST developments of civilization demand a settled system of agriculture, and are not compatible with nomadic life. The exact connexion between the rise of civilization and the rise of agriculture is possibly uncertain. The cultivation of different plants developed in different places: rice in the East and wheat in the West, for example. The cultivators may have attained only a low level of culture, and thousands of years may have elapsed before they produced a civilization of which the marks have endured. But to know where the different species of cultivated plants originated must help to trace the origins and diffusion of civilizations.

In studying this problem three methods have been used: the linguistic and historical; the examination of seeds found in prehistoric remains; and the search for regions where the wild relatives of modern crops occur. Vavilov* has developed a new method, which depends essentially upon collecting the varieties of each crop and finding regularities in their geographical distribution. For two reasons his conclusions can best be illustrated by wheat. First, because this is one of the most important crops, which he has studied in great detail. Secondly, because much has been learned about the origins and relationships of the various forms from genetical and cytological research—that is to say from their behaviour when crossed and the way in which their differences are inherited.

In England, nearly all varieties of wheat are similar in type. They differ only in minor characters, such as colour of ear or grain; and form part of a single species, *Triticum vulgare*. Only one, Rivet or Cone wheat, is unlike the rest; and this belongs to a distinct species, *T. turgidum*. But if the whole world is searched many thousand

* Papers on the origin and distribution of cultivated plants have been contributed by N. I. Vavilov to the *Bulletin of Applied Botany* for 1926, 1927 and 1931. His paper on 'The problem of the Origin of the World's Agriculture in the light of the latest Investigations' is published by Kniga (England) Ltd., Bush House, Aldwych, w.c. 2.

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varieties will be found, and the differences between these are often very great. When grouped according to the degree of their resemblance, they fall into about twelve species, within each of which they are more or less similar. Some of the species, in their turn, are more alike than others; and the whole twelve are easily divided into three groups, as follows:—

Group I	Group II	Group III
<i>T. aegilopoides</i> (wild form)	<i>T. dicoccoides</i> (wild form)	(no wild form)
<i>T. monococcum</i>	<i>T. dicoecum</i> (Emmer)	<i>T. vulgare</i> (bread wheat)
	<i>T. durum</i> (macaroni wheat)	and its near relatives
	<i>T. turgidum</i>	<i>compactum</i> , <i>Spelta</i> ,
	<i>T. polonicum</i>	and <i>sphaerococcum</i> ,
	<i>T. persicum</i>	of small importance.

The first group need not be considered. The only cultivated species, *monococcum*, is grown in mountainous parts of Europe, chiefly for forage, and it is doubtful whether it has ever been connected with the cultivation of the other sorts.

Genetics and cytology have shown that the origins of these three groups, and probably of the species themselves, were distinct, occurring at different times in different places. In plants, chance hybridization between related species is not uncommon; and the immediate result is sometimes a new species, which breeds true from the first and gives no outward trace of its derivation. There is little doubt that this was the origin of the second wheat group; but the actual parents—probably some wild grasses—have not yet been identified. It is unlikely, on the whole, that the cultivated species of the group came from the wild *dicoccoides*; probably they all arose independently in the way described. The species of the third group came in like manner; and the evidence suggests that one progenitor of each belonged to the second group.

The principal conclusions to be drawn are that the two groups, and very likely the species composing them, originated suddenly, and independently; and that the forms that gave rise to them may not be easy to identify. The third group is probably more recent than the second.

Wheat is an Old World crop. Its introduction to America, Australia, and South Africa, has occurred only in the last few hundred years. On botanical evidence, Emmer should be the most ancient cultivated species, since the ear of this form breaks up when ripe and the grain is closely held by the chaff, as in wild grasses but not in the

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other cultivated wheats. This conclusion agrees with other evidence. The species is only grown today in scattered patches, chiefly by isolated tribes who cherish their ancient customs. It is grown by the Basques in Spain, by certain peoples of south Germany, Russia, and Abyssinia; it occurs here and there in India, and has been found by Vavilov in some Armenian settlements in Persia. But archaeological evidence shows that in the past it must have been widespread. In England it was probably the only wheat in pre-Roman times. In Egypt it was cultivated at least from the Badarian period onwards; and is the only wheat so far found in the tombs, with the possible exception of a single sample from Fayum, doubtfully identified as *T. vulgare* but alone among Egyptian finds in being carbonized.

Vavilov has collected wheat wherever it is grown, and worked out the distribution of the varieties, especially those belonging to *durum* and *vulgare*, the most important species. The greatest number of *vulgare* varieties was found in Afghanistan, in the eastern districts especially, and fewer and fewer were discovered as the distance from this centre increased. In Persia, Baluchistan, the Punjab, and Bokhara, the number was still large; in England, Siberia, and eastern China, small. The general trend can be illustrated by grouping the varieties according to colour of chaff and grain, by whether they have rough or smooth chaff, bearded, half bearded, or beardless ears, and so on. It is then found that all the classes so formed, about sixty, occur in Afghanistan, and nearly as many in neighbouring regions; but far fewer in those that are more remote. This is clearly shown by the following short list:—

Afghanistan	—	59	Baluchistan	—	46
Persia	—	52	India	—	32
Caucasus	—	20	Mongolia	—	31
Italy	—	12	China	—	18
Belgium	—	6	Manchuria	—	12

This result is very striking. Nor is it confined to wheat. As Vavilov says 'in spite of the internationalization of cultivated plants, the wanderings of the peoples, in spite of colonization and the antiquity of agriculture, it is still possible to establish . . . areas of definite endemic varieties and races, regions displaying a maximal primary diversity of varieties, and to find out series of regularities in the distribution of these varieties'. The explanation suggested is that the centre of diversity of a species is the place where it originated.

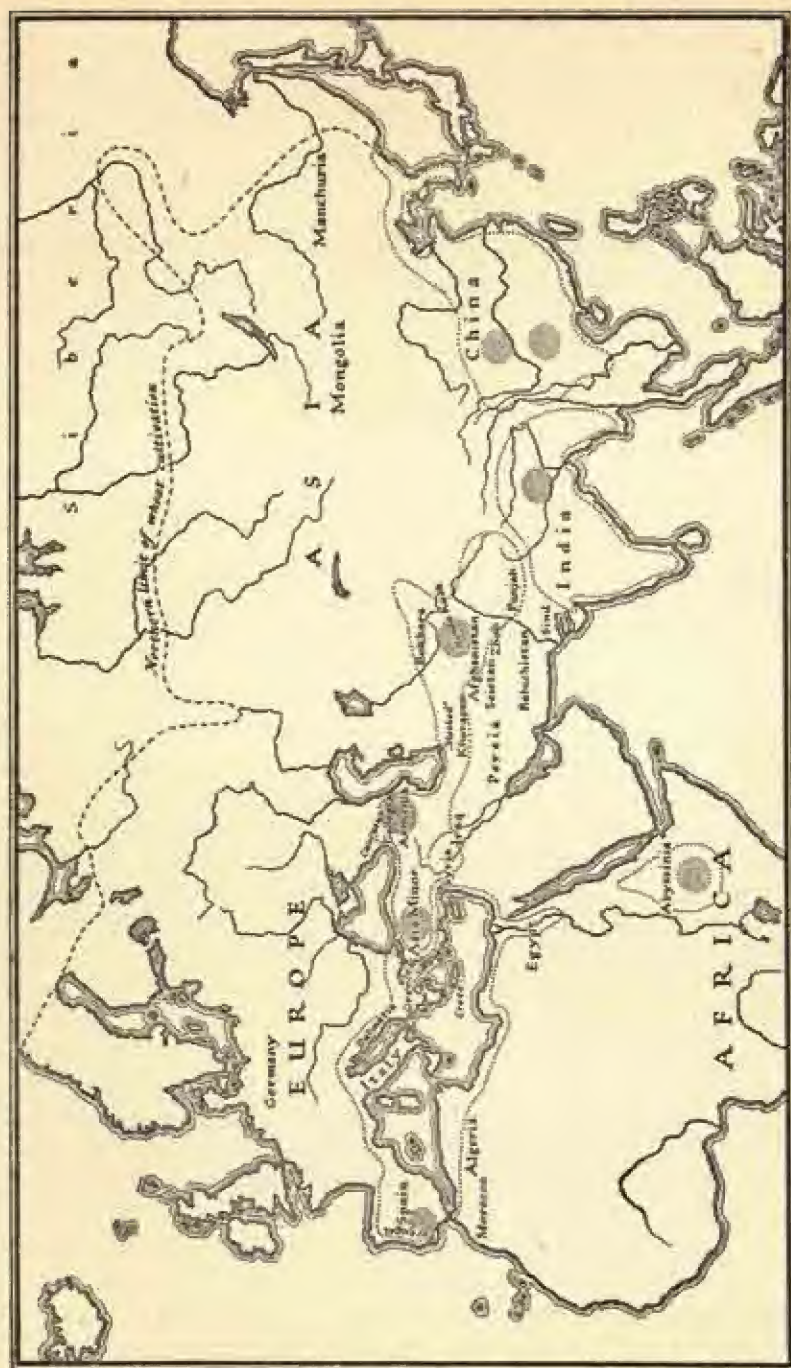
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T. vulgare, therefore, came from eastern Afghanistan. Here it would have had the longest time to evolve new forms. In the outer limits of the area it has been present a much shorter time ; few new forms will have been evolved ; and few forms will have penetrated from the place of origin.

One other third-group species, *compactum*, also came from Afghanistan. Though rare elsewhere, it is cultivated there in numerous varieties. A second, *sphaerococcum*, is confined to northern India. The distribution of the remaining species, *Spelta*, is imperfectly known, and may be widely different from that of its relatives.

The results for the second group species are quite different ; as would be expected from the genetical and cytological evidence that the groups had separate origins. For the primitive *dicoccum* there are naturally few data. Its present distribution is a mere relic of the past. But the centre for the rest of the group, considered as a whole, is undoubtedly to be found in Abyssinia and the Mediterranean basin. Vavilov believes that the most important species, *durum*, came from Abyssinia, where it is very diverse—much more so than in Egypt and Algeria, the two countries previously thought to be richest in *durum* varieties. To the north of the Mediterranean there are, as would be expected, fewer forms than to the south ; and from the high diversity in Egypt there is a steady falling off in the direction of Syria, Mesopotamia, Persia, India. The other species of the group are not very important. *Polonicum* is grown locally in the Mediterranean basin. The wild *dicoccoides* is found from Palestine to the Caucasus and Persia. *Turgidum* is nowhere very common, but ranges further than its relatives. While most diverse on the northern shores of the Mediterranean, centring perhaps in Greece and Dalmatia, it is found here and there in many countries from England to Western China. Only *persicum*, which is botanically rather distinct from the other species of the group, has a more distant centre, being almost confined to Georgia and Armenia.

The Mediterranean area, then, is the centre of the second group. *Durum* probably arose in Abyssinia, and is now the staple species of all north Africa, from Egypt to Morocco. The most widespread species of the third group, *vulgare*, is almost a stranger to the area. Though not uncommon there today, it is a recent introduction of European colonists ; except perhaps for a few imperfectly studied forms from the oases of Algeria. It occurs, also, in Abyssinia ; but the varieties show clear affinities with those of Portugal, and are found only in regions subject to European influence.



Map showing Centres of the Origin of Cultivated Plants.

Centres from which various cultivated plants have spread.
The dotted lines unite into groups the principal centres.

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If Vavilov is right, the second and third groups came from widely distant centres ; and they are believed, on very different grounds, to have arisen separately. The centres of both groups—Abyssinia and Afghanistan—are mountainous areas ; but other mountainous regions, such as the Alps, are poor in varieties, and other crops have different centres. Though widely grown in Afghanistan, barley is there very uniform ; despite the fact that wild barley, *Hordeum spontaneum*, is an abundant weed.

Within the last few years the Russian workers have collected the varieties of many other crops. Not all species have been completely studied yet, and there are still parts of the globe imperfectly explored, but it has been possible to state the place of origin of most important crops, and to point to the existence of several primary world centres of agriculture. The conclusions are provisional to some extent, but show clearly the general tendencies. Sometimes the varieties of a crop are distributed like those of wheat ; and, as in wheat, there may be several species which have originated in different places. Cotton, for example, has two groups of species, the Old World and the New, and two centres have been found for each. Sometimes a different plan is followed ; the most striking being the so-called secondary crops, which are believed originally to have been weeds in primary crops. One is rye, which, over the vast areas of north Europe and Asia where it is chiefly grown, is comparatively uniform in its botanical characters ; and is only found in any diversity in southwest Asia, where it has little or no importance as a cultivated plant. In these regions the cultivation of *T. vulgare* originated ; and winter rye occurs, in many forms, as a weed of winter wheat. Rye is hardier than wheat, and on the slopes of the Hindu Kush it gets more and more abundant in the fields until, at a height of 2000 metres, it supplants the wheat entirely and is grown as an independent crop. Vavilov supposes that as *T. vulgare* spread from south to north rye was carried with it as a weed. At the northern limit of wheat cultivation, the weed supplanted the crop, so that rye alone was grown ; but it occurs in few varieties, its centre of diversity being still Afghanistan, the home of the parent crop.

The same principle is believed to apply to oats and some other cultivated plants. In melons, the gradual entry into cultivation is clearly seen. Wild melons, besides growing on uncultivated soils, may invade the fields of wheat or cotton. In India and Africa they are then

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sometimes collected and used as food ; and from this it is only a step to the deliberate selection and cultivation of the best varieties.

So far, Vavilov is inclined to distinguish five principal world-centres.

The first of these is Afghanistan, especially southeast Afghanistan below the Hindu Kush. From here have come bread wheat, beans, peas, lentils, carrots, pomegranates, and other species. The standard of agriculture is generally primitive ; and the varieties, in their coarseness and poverty, contrast with those of other places such as Egypt, Asia Minor, Abyssinia.

The second is in southeast Asia, but its exact position is not yet known. It has produced naked oats, naked barley, millet, soy beans, many fruit trees and cultivated species of Cruciferae, and probably rice.

The third and fourth centres are the Mediterranean and Abyssinia ; but until the latter has been properly explored their exact relationship to one another is not quite certain. Between them they have given rise to several kinds of oats and peas, to large seeded flax, many vegetables, and other crops. Abyssinia produced *T. durum*, hulled barley, and a series of other plants.

Finally, a fifth centre is to be sought for in the New World ; but so far little is known about this region, and there may indeed be two or more centres, independent of each other. Mexico, Peru, and Chile, are the homes of the potatoes, Jerusalem artichokes, maize, tobacco, and the New World cottons, as well as many other crops.

It will be seen that, in several plants, allied forms have sometimes arisen at different times in far distant places. In the case of wheat, and some others such as oats and cotton, this agrees with genetical evidence. In barley, the existence of two centres is more surprising and no genetical basis is known for this at present.

These regularities in distribution, found by Vavilov, are very striking. He has given a simple explanation, which broadly speaking must, in my opinion, be accepted. It must be agreed that there were separate origins for the second and third wheat-groups, one in north Africa, one in southwest Asia. The only doubt is whether the centre of greatest diversity defines the place of origin exactly. Regularity in the wanderings of peoples may have helped to bring about an orderly dispersion of crop varieties, and may have shifted the centre of diversity from the place of origin. The wealth of forms in southeast Afghanistan may have been increased by the frequent migration of peoples into India. Such a process would not have given two different centres for

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wheat, one in Abyssinia and one in Afghanistan ; but though it might not greatly alter Vavilov's conclusions it will have to be allowed for when the subject is attentively considered.

If the distribution of varieties were carefully followed it is possible that definite evidence could be found for the movement of peoples from one place to another. A critical study of the forms of *T. durum* shows that very often the place they came from can be told from their appearance ; and when comparisons are made it is not surprising to find a similarity between the forms of Morocco and Spain, or Greece and Crete. Sometimes, closely similar forms can be traced over wide areas, and this would probably be caused by the movements of the tribes that grow them. For example, an apparently identical series, usually known as *Shutur Dandan*, has been obtained from Iraq, Meshed in Khorasan, Seistan, Zhob in Baluchistan, and Sind ; while a similar form occurs in the Punjab. In Zhob, where it is grown to neutralize the effects of the evil eye in a field, it is known as *Mecca Muazzama ghanam*, and is considered so sacred by the Mohammedan cultivators that it cannot be sown without the ceremonial ablutions necessary for the offering of prayers.

Vavilov has clearly shown that the varieties of cultivated plants have an orderly distribution ; that regularity prevails where chaos might have been anticipated. In the simplest case each species has a definite centre, believed to be the centre of origin, in which it is most diverse ; and each becomes progressively more uniform as this centre is left behind. In other instances the distribution is less simple, but more or less plausible reasons for the complications have been given.

Furthermore, the species themselves appear to have come from a small number of limited areas ; and these, it is suggested, are primary world-centres of agriculture. It is possible that some of Vavilov's conclusions will, in course of time, need modifying. But in general they agree well with the simple series of regularities he found, and no theory of the origin and spread of human cultures can safely ignore them.

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A PAGAN SURVIVAL IN PHOCIS

In March of 1932 Mr D. A. Garnsey (of New College) and myself broke our journey from Athens to Delphi at the monastery of Holy Luke of Stiris. While we were there a shepherd from Distomo came in to shelter from a storm. He brought with him his shepherd's crook, carved as most such crooks are, but with a device so curious that I made a drawing of it. Later I made a plasticine model from the drawing, and from this model the accompanying photographs (plate 1) were taken.

The upper part of the crook, made of smooth yellowish wood, followed in outline the usual shape—a stout rounded handle, and a downward curved projection forming the crook for catching sheep. It was this part which bore the carving: the head and bust of a woman, the body below the breasts turning into two snakes, which swept round in a circle so that their mouths met her breasts. Her arms were bent at right angles; with her hands she held the snakes just below their heads, and was evidently suckling them. Round her neck was a collar or wide necklace, with some pattern on it of wavy lines. On her head was a flat, plain circular head-dress, with two wings hanging straight down at the sides and hiding the back part of the head. On the tympanum round which the snakes were coiled was carved, apparently, a skull. The head and neck of the figure were joined to the handle of the staff; the rest stood clear. The whole was carved from one piece of wood. The design was decorative and ingenious, and though the carving was not over-skilful, the finish was good.

The shepherd told us that the crook had been carved for him in Distomo, but more information he was unable or unwilling to give. Possibly he was embarrassed, in the presence of the abbot, by the clearly pagan character of the carving. But he was evidently very proud of it, and pleased at the interest we displayed.

The quality of the carving was of less importance than the subject, which seems to be an interesting survival of paganism—the Mother-Goddess suckling her snake-son in his theriomorphic form, attached to the crook as a charm to bring fertility to the flocks. This is not

impossible or even unlikely. Mr J. C. Lawson records¹ that Demeter still survives in the country districts under the name of *δαίμονα*, and here she seems to have taken a definite shape.

The district is remote, and was formerly surrounded by centres of Chthonian cults. There were the Muses on Helicon. There was a cult of Ge at Delphi before Apollo arrived there, and the serpent was too powerful to be abolished in one single conflict. The altar of Ge remained close to Apollo's sanctuary, and long after he was firmly established there oracles still came up from the Earth.² Apollo himself sometimes advised his suppliants to sacrifice to Ge.³ And at Levadia, a day's walk from Distomo, the old worship of Trophonios was never overlaid with invading deities: indeed it probably succeeded to much of the prestige of the old cult at Delphi.

When Pausanias visited Levadia, Trophonios was associated with the river-nymph Hercyna. Their statues stood together, and beside them stood staffs with snakes coiled round them.⁴ The main attraction was a prophetic serpent in a deep underground cavern—a Chthonian deity in its most primitive form. Farnell says: ⁵ 'in the shrine of Trophonios at Levadia there was a prophetic snake that had to be propitiated with offerings of honey-cakes; and it is very probable that Ge herself was one of the aboriginal powers of the Trophonion, and only became supplanted by her young "double" Hercyna, whose badge is the snake'. The prophetic Trophonios would naturally attract most of the attention, and Ge, by the time she was completely anthropomorphized, had dwindled to the status of a mere Nymph.

At the same time the presence of Ge in some form certainly remained at Levadia. Pausanias says⁶ that those who went down into the oracular cave sacrificed not only to Trophonios and his sons, but to Apollo, Cronos, Zeus Basileus, Hera Henioche, and to 'Demeter, whom they surname Europe, declaring that she is the nurse of Trophonios'.

The sentence might very well be the answer to the problem; the local carving showing the particular local legend: Demeter nursing

¹ J. C. Lawson, *Modern Greek Folklore and Ancient Greek Religion*, p. 90 ff.

² Cf. Euripides, *Iph. in Taur.* 1260.

³ e.g. an inscription recording an oracle to the citizens of Cynicus. *Bull. de Corr. Hell.* 1882, p. 455.

⁴ Pausanias, 9.39.3.

⁵ L. R. Farnell, *Cults of the Greek States*, III, 10.

⁶ Pausanias, 9.39.5.

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Trophonios in his theriomorphic form. The presence of two snakes, though in any case required by symmetry, has also a symbolic significance, for Trophonios was closely associated with Hermes. Part of the initiation before consulting the oracle was to be ceremonially washed by two youths known as Hermai.⁷ A funeral inscription bearing the name of Hermes is found actually in Levadia, where Trophonios was lord of the underworld.⁸ By the time of Cicero they were identified.⁹ Now 'this proto-Hermes was always a Snake-God, and before the era of complete anthropomorphism he was thought of in snake-form. But it is an essential element of his function that he was not a single snake . . . but the double snake, male and female, the most prolific form of copulation in the animal kingdom'.¹⁰ Also 'in the minds of his worshippers, the character of fertility must be closely connected with the character of a Chthonic deity'.¹¹

Trophonios was in any case *χθόνιος*, and identification with Hermes would confirm his native tendency, as the Nourishing God,¹² to be *ἐπιμυήλιος*. And it gave him the right to appear as two snakes, the form in which the carving shows him. No shepherd could imagine or desire a more potent fertility-charm than this most fertile of all gods being nursed by the mother of all fertility. To place the god and goddess on his crook—the very keystone of his relations with the flock—would be the surest way of passing on their properties to the sheep and goats.

It is unusual to find a god thus portrayed in his animal form, and remarkable to find him coupled with an anthropomorphized goddess. Most probably the goddess and the snakes are joined only by the exigencies of the crook's shape; but if it be held that the goddess actually terminates in a serpent, certain interesting comparisons may be made. One Attic black-figure vase-painting shows four semi-serpentine nymphs beneath a vine. Dr Böhlau points out¹³ that they are kindly helpful nymphs, clearly contrasted with the ravaging

⁷ Pausanias, 9.39.7.

⁸ Collitz, *Dialect. Inschr.* 1, 455.

⁹ Cicero, *De Natura Deorum*, 3. 22.

¹⁰ A. L. Frothingham, 'Hermes, Snake-God, Caduceus'. *American Journal of Archaeology*, xx, 175.

¹¹ F. J. M. de Waele, *The Magic Staff or Rod in Graeco-Italian Antiquity*, p. 31.

¹² Farnell, *op. cit.* III, 281.

¹³ Philologus, LVII, 513, and plate.

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goats on the other side of the vase. Miss Jane Harrison further explains¹⁴ that both these nymphs and the snaky Erinyes are subdivisions of the Earth-Mother, specially personified for particular functions. Certain bronze vase-handles from Delphi¹⁵ show the same S-shape as the crook and bear heads presumably prophylactic; and another black figure vase¹⁶ bears on its handle the head and shoulders of a woman, whose arms end in serpents' heads and are laid along the lip of the vessel in an attitude evidently protective.

It is a long way from Phocis to Babylon, but since Professor Frothingham finds a Babylonian ancestry for Hermes it may not be irrelevant to quote from him a cuneiform inscription, saying of the mother-goddess Belit-ili that 'her breast is filled with milk and the lower part of her body is that of a serpent'.¹⁷ In Babylon, too, it was the custom for everyone to carry a stick bearing on the tip some flower, figure, or other symbol;¹⁸ and possibly it was this kind of stick which, when introduced into Athens, was called Persian and frowned on by the older and more conservative Athenians.¹⁹

None of this accounts for the face carved on the tympanum. If it is a skull, I do not pretend to explain its presence, which in this context would seem to be disastrous. Most probably it is, as Professor A. B. Cook suggests, an ordinary prophylactic face, and the resemblance to a skull purely accidental.

ROGER H. ELLIS.

STEATITE VASES FROM KISH

In view of the discovery of cultural relationships between the ancient civilizations of the valley of the Indus, Elam and the 'Fertile Crescent', it was interesting to read the notes by Mr Ernest Mackay in *ANTIQUITY** reporting the discovery at Mohenjo-daro of a 'fragment of a steatite vase bearing exactly the same intricate and very unusual pattern as a double vase of steatite found at Susa in association with other objects of the Second Period of that site. That the vase was an importation from Elam is rendered the more certain by its being a

¹⁴ J. E. Harrison, 'Delphika'. *Journal Hellenic Studies*, 1899, p. 205.

¹⁵ Fouilles de Delphes: Monuments figurés, figs. 296, 301, 303.

¹⁶ British Museum B. 620. *Journal Hellenic Studies*, 1, plate.

¹⁷ A. L. Frothingham, *op. cit.* p. 186.

¹⁸ Hdt. 1, 195.

¹⁹ Daremberg et Saglio, 1, 639.

* September 1932, pp. 356-7, with plate.

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greenish-grey steatite, of which it is the only piece that has been found in the Indus Valley excavations '.

Mr R. Martin, who has been studying the Kish material in the collections of the Field Museum of Natural History, Chicago, recently brought to my attention a fragment (plate II, fig. 1) of a greenish-grey steatite vase which was found during the season 1929-30 in trench C 7, at a depth of six metres. Two other similar steatite fragments were found during the season 1931-32; one (fig. 2) from trench C 8 at a depth of six to seven metres, and the other (fig. 3) from the surface of trench C 10. It is probable that this piece was found at the same depth, but its exact location could not be recorded. The C trenches lie to the northwest of the great temple of Nabunidus, which, together with the two ziggurats and other monuments, form the great complex of mounds known as Ingharra which dominates the eastern part of the city.

Upon close examination, the Kish fragments bear the same remarkable and intricate pattern as those figured from Mohenjo-daro and Susa. From archaeological evidence, the level in which two of these fragments were found belongs to the period c. 2800 B.C. This date agrees very favourably with those given by M. de Mecquenem for Susa II, and by Mr Mackay for the lower levels of Mohenjo-daro.

The discovery of these three examples of steatite vases of similar designs from Kish, Susa and Mohenjo-daro adds yet another link in the chain of cultural evidence for the close interrelation between these early civilizations in the early part of the third millennium before the Christian era.

HENRY FIELD.

THE CELTS IN THE MIDDLE AGES

The minds of the readers of *ANTIQUITY* have been turned of late towards the Celts. Mr Christopher Hawkes has disentangled for us the different elements in the Celtic settlements in Britain. Mr Kendrick has reft the hanging bowls from the Saxons, who loved them so well that they tried to take them to heaven, and has restored them to their Celtic designers; and Dr Mortimer Wheeler has shown that the Celts only produced their best work in a state of society such that it could afford sufficient security to make a fairly large measure of personal liberty possible, and sufficient money to give the craftsman adequate material compensation for his labour. It is as though we had been seeing the picture through the Celtic twilight and the grime of ages; and now the cleaners have come, let in the sunshine and begun to

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remove the dirt from the canvas so that the original colours can show clearly. But the process is not yet complete.

The writer, with the emerging Celts in mind, was spending a day at Wells, first to see the fine house in the Close, where, thanks to the generosity of Mr W. Wyndham, the Early Iron Age finds obtained from Wookey Hole by Mr Balch are now housed, and secondly to look once more at the Cathedral. The affinity between the curvilinear ornament on the pottery and the sculptured curvilinear foliage of the Cathedral was immediately obvious. (Plate III, fig. 2).

To anyone interested in the ornament of the medieval churches the development from the stiff and conventional, or even grotesque though handsome Norman decoration, to the riot of beauty displayed in the thirteenth century must be surprising. Something was evidently added to the stew to produce the consommé. No doubt the improved technique due to increased use of the chisel rendered the change possible, as it accounted for the great increase in the undercutting of the mouldings; but there was a change in spirit as well as in craftsmanship.

Now France can show an abundance of thirteenth century foliage, especially on her finer churches, but, handsome as it is, it is not the curvilinear foliage of England. The French work is stiffer and more stereotyped, of a style suggestive of celery, for the stalks are an important part of the design, sometimes at the expense of the leaves. (Plate IV). This is quite obviously akin to the Corinthian capital, with its volutes and upstanding foliage, and so is naturally evolved from the Romanesque capital which in France, especially in Burgundy and the South, has such close affinities to its Roman prototype. When the French foliage ceased to be stereotyped it became naturalistic, thus foreshadowing the work of the fourteenth century, such as in England can be seen in perfection on the walls of the chapter house at Southwell; or else developed a crinkly pattern known in the French guide-books as 'curly greens' (*choux frisés*).

But the English curvilinear foliage is not like any of this. Stiff-leaved is a poor name for it; stiff-stalked would be better, for though the leaves keep a certain formality, they are never stiff. Like the French examples, its evolution from the Norman capital can also be traced, but through rather a different line. As Mr Gardner has pointed out,¹ the Norman cushion capital became, by division, the

¹ *English Gothic Foliage Sculpture*.

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scallop. The scallop became the incurved, or pollard willow type of ornament, presenting small, flat surfaces that invited decoration. (Plate III, fig. 1). This was applied, and sometimes took the form of trefoils in low relief, which, themselves, occur in Norman and Saxon work. The thirteenth century trefoil refused to remain flat. At Enmore church (Som.), it can be seen actually emerging from the flat into the round, and after that there was no going back. In this and in other ways curvilinear foliage was created. The volute as well as the trefoil and even the Norman version of the palmette and acanthus pointed in the same direction, but the new invention left its origins behind at once. In the larger churches, such as Wells or Romsey, the style seems to have leapt to life fully formed. It is astonishingly uniform in many buildings from about 1180 to 1250 or later. This might be expected in important churches, but the persistence of the style in equal perfection in remote and unimportant country ones is significant of the wide spread of the impulse that informed it. At Westbury-on-Trym (Bristol) it can be seen in an elementary stage, buds as it were, while at Worcester even the tail of the bird in one of the spandril blossoms forth into trefoil-foliage. These leaves, on capitals, always grow upwards from the neck, and then cascade over in steep curves, and are generally trefoil in pattern. This love of the trefoil and of steep curves is very suggestive of the way in which the Celts adapted the classical patterns to their own use in the earlier periods. If a flat space has to be filled, the quatrefoil may be used, but the actual foliage will be almost entirely trefoil. Dr Wheeler has shown that the distinction of Celtic art from Classical and Teutonic lies in the use of 'eccentric curves and swelling forms', while he adds that 'two objects with identical Celtic decoration are of the utmost rarity'. Flowing curves and swelling forms are the principal motif in English curvilinear ornament, and its most remarkable characteristic is its uniformity of style combined with intense individuality of detail. Nothing is repeated exactly, and herein lies one great difference between English and French work of the same period, and English work of this and all other periods. Another Celtic characteristic is exhibited by this ornament, for though it suggests natural forms, it is never naturalistic. In the work of the succeeding century we can distinguish unerringly the leaf of the oak or maple or speedwell, but thirteenth century foliage grows from a tree never seen on earth.

The earlier periods when the expression of the Celtic genius was at its height have been defined as between the first and third centuries A.D.,

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and again between the sixth and ninth, with an interval of three hundred years. The great period of curvilinear foliage was the second half of the twelfth and the first half of the thirteenth century, so that again a gap of three hundred years separated the periods of Celtic artistic dominance. The date of this re-emergence was not fortuitous. To quote Dr Wheeler once more :—‘ The golden periods of art have a solid bullion basis. Art demands both wealth and security ’, which of course depend upon the consolidation of political authority. The latter part of the twelfth century was the first time that these conditions were fulfilled in England after the tenth century. During the Danish raids, and even under the Danish kings, prolonged security was a rare condition, for the strong rule of Canute came between two far from settled periods. Edward the Confessor, in his turn, cannot have controlled his earls sufficiently to make life stable for the bottom dog, and the reign of the Conqueror must have been a time of unrest and readjustment, followed by the miseries which led to the murder of the ‘ Red ’ king. The reforms of Henry I were soon swamped in the Civil War—‘ when God and his Saints slept ’, so that it was not until the reign of John that security and therefore comparative prosperity dawned once more for the multitude of lesser folk in England. During this time there was a renaissance in learning and art, beginning in the reign of Henry II and born to some extent of his marriage with the heiress of Guyenne, who brought to the north her heritage of the undimmed culture of the south. The revival or rather the emergence in architecture of the fine transitional work of the second half of the twelfth century, merging into the glories of the thirteenth, are the fruit of this association. When this opportunity arose may not the Celtic aptitude or tradition, still existing in many villages of England amongst a people now to a great extent sprung from both Celt and Saxon, have found expression? Certainly in the purely Celtic districts when fine building was attempted, the same style exists, but this is comparatively rare, as the Celts were not great builders, and it may be that, as was the case with the escutcheons, it was only under the executive Saxon predominance that the best and most characteristic Celtic work was produced.

It must not be imagined that the Celtic genius failed to express itself during these dark intermediate centuries. The magnificent manuscripts and the Irish crosses are there to contradict any such assertion, but the cloister alone provided the security which was necessary for its existence, and it was, for the time, driven from the turbulence of the ordinary world.



PLASTIC MODELS OF HANDLE OF SHEPHERD'S CROOK, DESTOMO, GREECE
The first shows the attachment to the staff
(See p. 84)





FIG. 1



FIG. 2



FIG. 3

FRAGMENTS OF THREE STEATITE VASES FROM FIELD MUSEUM—OXFORD
UNIVERSITY JOINT EXPEDITION TO KISH, MESOPOTAMIA. (See p. 84)
Pk. Field Museum of Natural History

PLATE III



FIG. 1. POLLARD WILLOW CAPITAL, WITH FLAT TREFOIL ORNAMENT
SHERSTON CHURCH, WILTS



FIG. 2. TYPICAL ENGLISH CURVILINEAR FOLIAGE, WELLS CATHEDRAL
(See p. 85)

PLATE IV



TYPICAL STIFF-LEAVED FOLIAGE, WITH NATURALISTIC LEAVES BENEATH,
LE MANS CATHEDRAL, FRANCE

PLATE V.



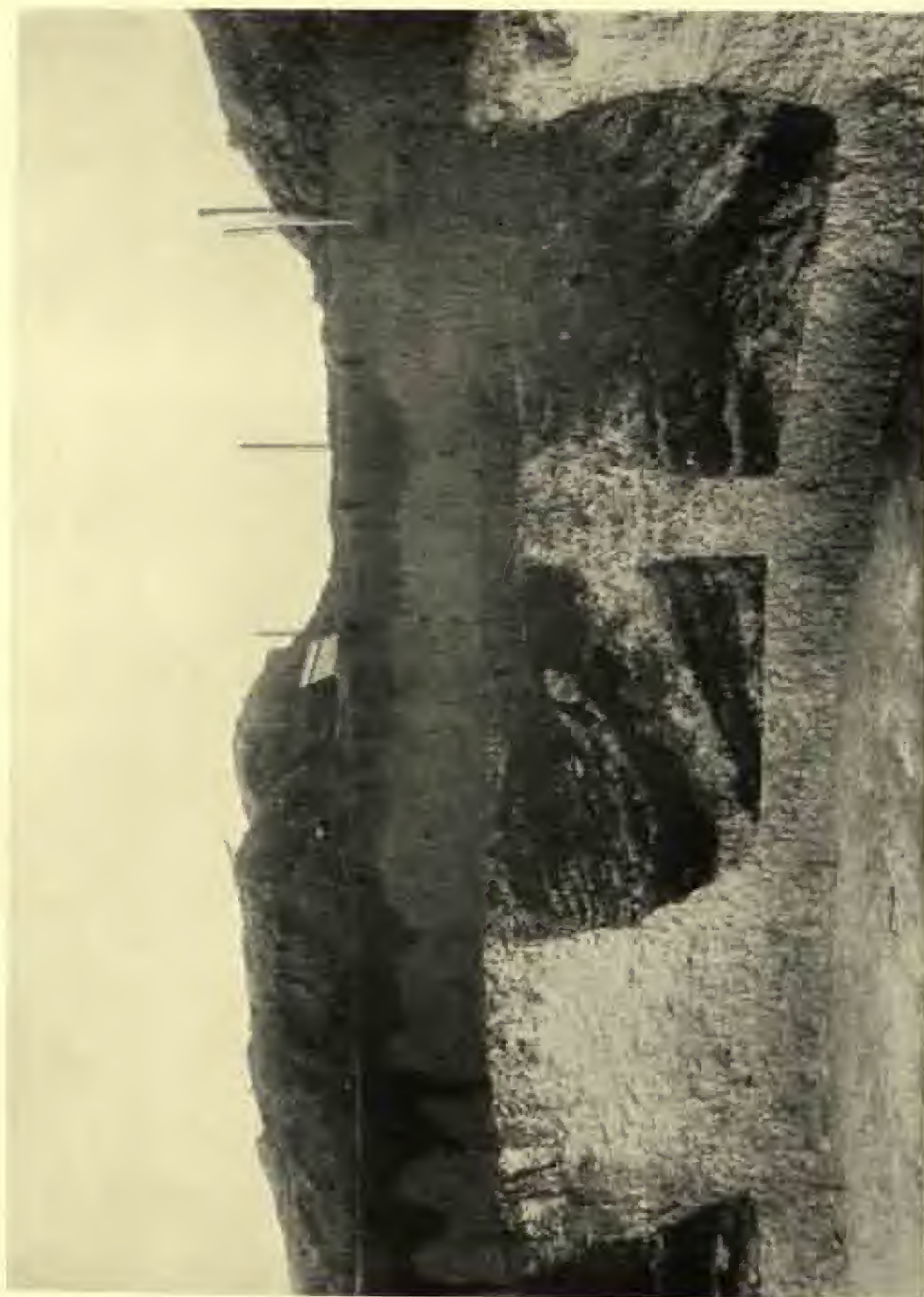
FIG. 1. ANCIENT EGYPTIAN BRUSH
FROM AMARNA (14TH CENT. B.C.)

[See p. 96.]



FIG. 2. MODERN BRUSH FROM MAJORCA

PLATE VI



PITS AT BETTESHANGER COLLEGE, REST, FOUND 1923
(See p. 99)

PLATE VII



PORTION OF THOMAS OF ELMHAM'S MAP OF THANET (A.D. 1110), NOW IN THE LIBRARY OF
TRINITY HALL, CAMBRIDGE
(See p. 92)

PLATE VIII



PROBABLE SITE OF THUNOR'S PIT (D) REVEALED BY AIR-PHOTOGRAPHY
Crown copyright reserved

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What was the fate of the curvilinear ornament? It vanished utterly, to be succeeded by the naturalistic foliage of the fourteenth century, which in its turn became stylized, but with the rectangle rather than the trefoil as the basis of the design, in the well-known decoration of the fifteenth century.

The curvilinear impulse was short-lived, but so were the other Celtic impulses at their best, and it may not be too fanciful to trace in this lovely expression of artistry the same genius that impelled the La Tène craftsmen to produce engraved mirrors and the escutcheons of hanging bowls.

DINA PORTWAY DOBSON.

MINERAL COAL IN ROMAN BRITAIN

It does not seem to be generally known that mineral coal was used in Britain in the Roman period. When there must have been a practically unlimited supply of wood for fuel in districts so far removed from any coal-field as Wiltshire, for instance, it is curious that it should have been worth while to carry such a heavy and bulky material as mineral coal over these long distances. The means of transport was probably pack horses.

Among the references to the discovery of mineral coal in definitely Roman association are the following, which though suggestive enough, does not pretend to be an exhaustive list of finds.

'Common bituminous coal' found in the Roman villa at Baydon, on the borders of Wilts and Berks. Specimens of this coal are in the Museum at Devizes. *Gentleman's Magazine*, 1866, pt. 1, 335.

'Traces of the use of bituminous coal in the houses of Uriconium (Wroxeter) have already been met with'. *Ibid.* 1857, pt. 1, 625.

'Fragments of fossil coal' reported to have been found in the Roman villa at Foxcote, Bucks. *Ibid.* 1843, pt. 1, 303.

In Bruce's *Roman Wall*, 1914, pp. 51-52, 145, it is stated that coal seems to have been worked by the Romans at Benwell, near Newcastle, and that nearly a cartload was found in one of the guard-rooms at Housesteads on the Wall.

Coal pits apparently of Roman age at Werneth, Lancashire, are referred to in Ward's *Roman Era in Britain*, p. 10.

Dr Mortimer Wheeler refers to fragments of coal found on the site of a Roman building at Ely near Cardiff, and to others said to have been found under an undisturbed Roman pavement at Caerwent, and in Roman strata at Chester and near Flint. *Prehistoric and Roman*

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Wales, p. 268. He refers to Solinus, in the 3rd century A.D., speaking of the use of coal at Bath, as follows :—

'In quo spatio magna et multa flumina, fontes calidi opiparo exculi apparatu ad usus mortalium: quibus fontibus praesul est Minervae numen, in cuius aede perpetui ignes nunquam canescunt in favillas, sed ubi ignis tabuit, vertit in globos saxeos'.

Among the Wiltshire sites on which coal has been found are the villa at Stanton St. Quentin, the Roman building at Nuthills near Bowood, a rubbish heap on the Romano-British settlement close to Silbury Hill, and the Romano-British villages of Stockton and Knook. The coal on these sites very probably came from the Somersetshire coal-field, or possibly from the Forest of Dean. A note with special reference to sites in Wiltshire is printed in *Wilts Arch. Mag.* XLV, Dec. 1930, p. 170.

M. E. CUNNINGTON.

TWO BRUSHES

During the recent excavations of the Egypt Exploration Society at Amarna, a paint-brush (plate v, fig. 1) was found. It belongs to the 14th century B.C. and may even have belonged to Akhnaton himself. Our purpose in publishing it however is to show its extraordinarily close resemblance to the small brushes still made and sold in the Balearic Isles. The one here illustrated (fig. 2) is $9\frac{1}{2}$ inches long and made of the leaves of the palmetto, a palm-like plant that grows wild on all rocky uncultivated ground in the islands. The 'hairs' of the brush are formed by splitting the leaves, and the binding is of the same material. One plant alone supplies the whole of the raw materials. The Egyptian discovery proves that the modern Balearic brushes have a pedigree going back at least 3200 years; actually they are probably much more ancient still. The same is probably true of the Balearic baskets, which closely resemble those of northwest Africa and Egypt.

Thanks are due to the Egypt Exploration Society for allowing the photograph to be published (fig. 1), and to the Assistant Secretary for her help in obtaining it from the Cairo Museum. The other (fig. 2) is from a Majorcan specimen in my own possession (and use). O.G.S.C.

PREHISTORIC PITS IN KENT

Whilst excavating for the surface lay-out of Betteshanger colliery in 1923, a polished flint axe was found in the bottom of a shallow valley. It was buried beneath about 3 feet of brickearth and adjacent was the remains of a fire, a small piece of stained earth, with pieces of charcoal and a few weathered oyster shells. The axe is now in a

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museum in Scotland. A careful lookout was kept on later excavations, but although many thousands of cubic yards of earth were moved no other remains of interest were found.

During excavations for the foundations of water ponds and winding-engine houses, several man-made pits were discovered. These were dug in chalk, and were overlain by 4 to 5 ft. of undisturbed brick earth. The photograph reproduced (plate VI) shows three pits exposed in the sides of the excavation for the water pond. They are about 8 feet deep (measured from the Chalk surface) and about 8-9 feet across as seen in the excavation. The sides were sharply defined and the pits were obviously filled in before weathering had set in.

As far as could be seen the pits were circular, and though two are separated by a wall of chalk only some 2-3 feet thick, they were not connected. The infilling consists of chalky rubble, stones and earth and has every appearance of having been thrown in, and not deposited by natural causes. The brickearth cuts across both the undisturbed chalk and the infilled pits with a sharp line of demarcation. It is typical of that found in the district, being a buff, homogeneous loam with a few scattered stones, calcareous below and decalcified near the surface as shown by the darker colour. The lenticular mass of loam and stones over the chalk wall may be a more gravelly brickearth, or it may be artificially laid material similar to that in the pits.

When excavating for the winding-engine house, a larger prehistoric pit was seen. Measured from the chalk surface it is about 7 feet deep and about 20 feet long. In this case the pit has only been partly filled in with rubble which occupies the floor and is banked up a little against the sides. The interior is filled with brickearth continuous with the overlying sheet. A few bones, not identified, together with a portion of a horse's skull, were found at the bottom of this pit.

No other pits were exposed on the site although a very large area was uncovered.

The excavated surface level of the Colliery site is 73 A.O.D. and the area today is 4 miles from the coast line at Deal.

The photographs (and others not reproduced here) were taken in 1923 and shown recently to Mr H. G. Dines of the Geological Survey, who recognized their significance, and it is with his assistance that these notes have been written.*

G. C. H. NASMYTH.

* In a letter to the EDITOR, Mr Nasmyth adds :—'I examined the debris carefully in 1923, when excavated ; there wasn't a scrap of pottery or even a worked flint—just chalk rubble and natural flints mixed with brickearth'.

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THUNOR'S PIT

A curious story relating to boundaries comes from Kent; it was set down first in writing in 1414 by Simeon of Durham, but the account here given follows Thomas of Elmham, whose story is illustrated by the oldest surviving English plan with any claim to be called cadastral. It represents the Isle of Thanet. The story begins at Eastry with the murder of Ethelred and Ethelbert, great-grandsons of Augustine's convert King Ethelbert, and the time is somewhere between A.D. 664 and 669. The father of these two boys was heir to the throne of Kent; but he died before the King his father, and his younger brother Ercombert succeeded. At the death of Ercombert in 664 one of the two boys should have become king, but the throne was usurped by their first cousin Egbert. Shortly after his accession Egbert connived at the murder of his two cousins by his *praefectus* Thunor. Such crimes provided an obvious opportunity for blackmail; and his cousin Dompneva was quick to avail herself of it, prompted by Theodore, Archbishop of Canterbury. Dompneva was wife of the King of Mercia and sister of the victims. She and the Archbishop demanded compensation, Dompneva stating that she intended to found a monastic institution and wanted a grant of land to endow it. Egbert offered her land in Thanet—'as much as her tame doe (*cerva sua domestica*) could traverse in a single rush (*uno impetu*)'. The King and his court assembled to watch, and the doe was released on the seashore at Westgate near Margate. It followed a remarkably geometric course, making several right-angle turns;¹ but about midway it encountered the wily Thunor, who may be supposed to have owned land thereabouts. Thunor attempted to head it off, when, lo and behold both he and his horse were engulfed in the lower regions with Dathan and Abiron. 'In that spot', continues Thomas, 'there is visible to this day [1414] a pit called "Thunor hys lope" [Thunor's leap]. Here I shall set down a plot of the position and shape of this island [Thanet], with the run of the doe demarcating the boundary between the domains'. At this point in the medieval record there follows the map (plate VII). He thus explains it: 'In the above plot the run of the doe is shown

¹ These actually represent the course of the boundary between the arable fields of the parishes of Garlinge and Acol, before its alteration in recent times. The course marked by Thomas of Elmham is very accurate and may be plotted from his map to the 6-inch map without difficulty. It may be conjectured that this boundary-line had been in dispute, and that it was itself the real cause of the map being drawn.

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by a green line, coursing to and fro; it is three feet wide and is perfectly preserved without any break. The royal roads of the island leading from one parish to another are shown by a red line. The green line in the west portion near Sarre, near the church of St. Giles, marks the domain of the barony, later transferred to the domain of S. Mildred. The space of ground enclosed by the tame doe contained in length and breadth 48 *aratra*. Thunor's pit, once called Thunor's lope, is now known locally as Heghisdale; it is to be seen near the doe's run, against Aldeland'.²

The original map of 1414 is still preserved in the manuscript, a handsome book of large folio vellum leaves, now in the library of Trinity Hall, Cambridge. Reproduced several times, the best reproduction is a coloured facsimile in the Rolls Edition of the manuscript.³ The original was lent recently to the Ordnance Survey when the map was photographed. (Plate VII). The site of the pit can be determined within fairly accurate limits from the map itself. It lies close to Manston Aerodrome; with the object of seeing whether it would be revealed by air-photography, I asked the authorities to photograph the area. The result shows one mark closely resembling the oval mark on the map of 1414. Last summer I investigated the spot, but was unable to detect anything but the faintest suggestion of a depression on the site of the oval dark mark (1) on the photo. There is however, such a slight depression visible. Adjacent to it is another, much more plain, corresponding to the round black mark (2) on the photo. Either of these may represent Thunor's pit, but both in position and shape the oval one is more suitable. (Plate VIII).

The whole neighbourhood abounds in chalk-pits; in many of them a series of galleries has been hollowed out. One such series at Alland Grange, $\frac{1}{2}$ mile S.E. of Thunor's pit, is now used for growing mushroom-rooms. There are other pits at Cheesman's Farm and Mount Pleasant, the latter bearing the suggestive name of Quendele on Thomas of Elmham's map. It is probable that these now *open* chalk-pits represent the site of dene-holes which, after collapsing, were still used as quarries. The existing galleries at Alland Grange appear all to be modern; but

² Now Alland Grange.

³ *Historia Monasterii S. Augustini Cantuariensis*, by Thomas of Elmham; edited by Charles Hardwick, *Rolls Series*, 1858. The account quoted is on pp. 207, 208. On the facsimile (*Historia*, frontispiece) Thunor's pit is the *oval* dark mark; the round mark is merely a grease spot (now removed) which has been unintelligently copied.

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it is not unlikely that remains of a genuinely ancient one, now perhaps unidentifiable as such, may exist here and there. References to Thanet dene-holes will be found in the *Archaeological Journal* 1881, xxxviii, p. 395 ('the caves at Manston were originally dene-holes'); and other references to Kentish dene-holes in the same article. One called Hegdale pit⁴ in Preston near Faversham (O.S. 34 s.w. Lat. 51° 18' 21", Long. 0° 55' 7" E) was probably one of these referred to in general terms by Camden (edn. of 1587, p. 199); the name is interesting as recalling Thomas of Elmham's Heghisdale (see also Hasted's *Kent* II, 717).

Camden explained the dene-holes by quoting Pliny, and his explanation may be accepted (for details see my *Air Survey and Archaeology*, H.M.S.O., 2nd edn. 1928, p. 6). Thanet and the whole of northern Kent was quite densely inhabited in Roman and pre-Roman times; and there is Caesar's own evidence for the existence in Kent of Celtic fields. Marl-pits would therefore be expected on *a priori* grounds, and Thunor's pit may safely be regarded as such. It would be interesting to test the legend by cleaning it out; the work would be costly, but no dene-hole would be better worth examination.

The religious foundation which was built and endowed with the land was that of Minster near Ramsgate. The legend may have helped to keep alive the knowledge of the monastery's bound-marks—always an important matter in the mapless Middle Ages, and particularly so when, as here, most of the land was open arable, where natural land-marks were scarce and all in danger of deliberate removal or destruction. In the days before Boundary Commissions unconventional methods may often have been employed, if we may trust in folk-lore; the legend of the foundation of Carthage, told also of Caistor in Lincolnshire, will be recalled. But I know of no other instance of the employment of a lady's tame doe.

O.G.S.C.

MAZE SYMBOLISM

Mr G. D. HORNBLOWER writes:—'With reference to Mr W. F. J. KNIGHT's paper on Maze Symbolism, in the December number of *ANTIQUITY*, is it not possible that the root *tro* (or *dru*) which it has been suggested may underlie the name of the Roman mounted game *Troia*,

⁴ I am indebted to Captain M. W. Hilton Simpson, of Sole Street, for this identification; the name will be restored at the next revision of the large scale O.S. maps of the district.

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may be also traceable in the name *Trôs*, given to the mythical founder of Ilion? The city was founded, if current economical theories of history are to be trusted, as a key-fortress to maintain mastery over the valuable trade-route between Asia and Europe, and this mastery, and not the beautiful Helen, was the real prize of the Trojan war. The city may have had, beside its name Ilion, an epithet denoting its guardianship of an important entryway, derived from the same root. The root being lost, the epithet would be misunderstood and from it there might be developed, by an inverted deduction, the name of the mythical founder, *Trôs*—a process not unusual in the workings of the human mind'.

PHOTOGRAPHS FOR REPRODUCTION

A correspondent writes:—'In the editorial notes in *ANTIQUITY* for December last you found reasons for complaining of the poor quality of the photography so frequently used in the illustration of scientific printed matter. You are not alone in this respect for many of the photographs employed can only give an uncomfortable feeling to careful photographers. My object in writing to you is to say that if you should know of anyone who would care to accept help in this respect I shall be most pleased to give that help to anyone who may be living in the London area. In making this offer may I also say that I do not wish for payment of any kind'.

We feel sure there must be some who would gladly avail themselves of this generous offer of help from an expert photographer who has retired from active work, and if any such wish to do so letters addressed to *PHOTOGRAPHY*, c/o *ANTIQUITY*, 24 Parkend Road, Gloucester, will be forwarded.

ESHER RESEARCH STUDENTSHIP

Two years ago the Trustees of the London Museum, through the generosity of Viscount Esher, instituted the Esher Research Studentship in memory of Reginald Viscount Esher, one of the Founders of the Museum. The Studentship is normally tenable for two years, and is awarded for the purpose of promoting research into some aspect of the history or archaeology of London, whether by documentary research, by excavation, by museum-work or by a combination of these methods. The award is made by the Trustees on the recommendation of an advisory committee which includes representatives of the

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Universities of Oxford, Cambridge and London, the Society of Antiquaries and the British Academy.

The first Student was Mr G. C. Dunning, B.Sc., who during the past two years has been carrying out research into the history and archaeology of the neglected subject of medieval pottery in this country and the adjacent parts of the Continent, with special reference to the large collections in London. The results of Mr Dunning's researches will probably in due course be published by the Trustees of the London Museum.

In March 1933 the Studentship will be re-awarded, and applications from candidates possessing either an approved degree from a recognized British or foreign University or some equivalent qualification are invited on or before 11 March 1933. Particulars may be obtained from the Secretary, the London Museum, St. James's, S.W. 1.

THE PEDIGREE OF THE KEESHOND

All interested in dogs and their ancestry will have read the article in the December number of *ANTIQUITY* written by Dr Max Hilzheimer, the German savant, and translated by Roland G. Austin of Glasgow University. To Keeshond breeders there are two passages of great interest. First, the illustration (fig. 9) of the Assyrian war-dog. Unlike most of the other dogs illustrated it has a long coat and a certain resemblance to the heavy type of Keeshond. I may add the resemblance is in outline only and not in character, for the dog in question has hold of an intruder or enemy in no uncertain fashion!

I have upheld the idea for a long while that the Keeshond is very probably the original 'friend of man', the first *dog* in fact—the watch-dog that enabled him for the first time to enjoy the blessings of deep sleep. Before he had his dog to warn him of danger he could never sleep more soundly than an animal. The dog that he bred—from the wolf it seems—was his companion and watch-dog. It had the sensitive prick-ears of the wild species (the wolf, the fox, the hyena, etc.), the thick coat of the North, and that curly tail which is a characteristic thousands of years old. (One wonders what it came from? Pride in being the first animal to be tamed by man?)

It may not be generally known that the Bushmen of Australia, one of the most primitive of living peoples, keep dogs as watch-dogs, but on the reverse principle to ours. These dogs are trained to range in the bush ahead of their master and to return to him at once *silently*



A YOUNG KEESHOND NOT YET IN FULL COAT
('The prick-eared, curly-tailed dog')

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on the approach of danger, *i.e.* of a man of another tribe. They are valued very highly by the Bushmen, and their methods of raising delicate members of the litter would not appeal to us ! They are said occasionally to eat them, but their principal function is that of watch-dog against attack by enemies.

We know that the Keeshond was exactly like the present type in 1740, for we have the little Keeshond model at the end of the silver spoon of that date made at Nymwegen. You used a spoon of this type if you were a supporter of the patriot Cornelius de Witt, and the dogs are called after him Cornelius (Kees) dogs. Just as in England, if you were a partisan of the Regent (afterwards George IV), as opposed to the partisans of George III, you had chairs with the Prince of Wales' feathers introduced into the decoration—a subtle way of showing with whom your feelings really were.

In 1740 then we have pictorial evidence that the Keeshond was just like he is now. Does anyone know of a picture or reference to the Keeshond between 1740 and the days of Julius Caesar, who in his *De Bello Gallico* refers to the *Canis Pomeranis* with prick ears and curly tail ? I wish it might be possible to bridge the preceding centuries back to the Mesopotamian seal of 3,000 B.C. on which Dr Hilzheimer states (p. 417) that 'there is an undoubted representation of a Pomeranian ; this by the way is the only illustration of a dog of this group [the fox-terrier and his close relation the terrier] known to me from ancient Mesopotamia'. I can only imagine that the cousins of the Keeshond gradually assumed the traits most required of them—the elkhound a herd dog, larger and faster ; the Mongolian sheep dog, thicker and woollier ; the Huskie, heavier shouldered for pulling work ; and all the dainty evolutions of the breed : the Shipperke, the British Pomeranian, the Chien Lou Lou and the Maltese terrier.

G. WINGFIELD-DIGBY.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

Excavations have been made at Whitehawk Camp, near Brighton, and Dr Cecil Curwen writes that the outstanding features are :—

(1) Two large post-holes guarding a causeway, with two smaller ones behind them in the line of the rampart.

(2) A pit of beaker date outside and close to the 3rd ditch, with a spread of beaker and (?) Peterborough pottery across the silting of the ditch *well above* the level of the neolithic occupation, and separated from it by a thick band of sterile fine silt.

(3) Two adult and one infant inhumations in the neolithic occupation level, and contemporary with it.

(4) A complete sheep's skeleton at the bottom of what looks like a post-hole on a platform jutting into the 4th ditch.

(5) A considerable amount of pottery, etc.



'The Gertrude Bell Memorial Expedition to Arpachiyah near Nineveh'. We have received a circular asking for subscriptions (to be sent to the Expedition, British Museum). We quote from it : 'Arpachiyah is a prehistoric settlement about 200 miles north of Baghdad, 4 miles east of Nineveh . . . the only known site in Northern Mesopotamia which exhibits remains of the fifth millennium B.C. on the surface over a wide area'. The surface indications are promising, and we shall look forward to interesting results later on.



The Slindon raised beach has been examined by Mr J. B. Calkin (of Wychwood School, Bournemouth) and a full report is promised. Its relative age is of critical importance in determining the antiquity of man in southern England (*Nature*, 26 November 1932, p. 813).

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Captain T. W. M. Johnson, R.A., writes (from India) :—' I have noticed in South Staffordshire and in the "Black Country" that there is a weed with a conspicuous red flower which grows especially on old slag-heaps and the sites of ruined iron-works. I am informed that the name of this plant is Rose Bay Willow-herb. It appears that this plant grows better on slag than on other soil. I thought that this fact might be of use in helping to find the sites of Roman ironworks or slag-heaps '.

We suspect that willow-herb will seed and grow on *any* freshly turned soil, however, not specially on slag-heaps. It is an abundant weed on the reverted arable of the North Hampshire downlands, especially where woods have been cut down.



Mammalian remains of Ice-Age are reported from Tunstead Quarry, near Buxton. Bones of bison, giant Irish deer, and of red deer have been identified. (*The Times*, 16 December, p. 9).



The expedition organized by Major Bagnold in the southern part of the Libyan Desert has spent two months investigating the geology, botany, entomology and archaeology. Dr K. S. Sandford of Oxford University has been engaged in the archaeological survey. (*The Times*, 30 November, p. 11).



Under the direction of Mr V. Nash-Williams excavations were in progress last December on the site of the Roman legionary fortress at Caerleon, Monmouthshire. The excavation has been more particularly in the centre of the fortress but included the site of the southwest gateway and part of the defences. A report is printed in *The Times*, 27 December, p. 16.



In order to determine the date of the walls at Chichester a trench was cut through the earth bank, which is faced on the exterior with masonry. Pottery of various periods was found but owing to circumstances it was not possible to make a conclusive exploration and it is hoped to make another cutting which will give more precise evidence. (*The Times*, 27 December, p. 16).

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Mousterian deposits, deeply stratified, have been found in the caves at Athlit, where Miss Garrod is conducting excavations for the British School of Archaeology in Jerusalem and the American School of Prehistoric Research. Remains of hippopotamus and rhinoceros and Levallois flakes, with a skeleton resembling *Palaeanthropus palestinus* found at Athlit last year, were discovered in the third layer. (*The Times*, 19 December, p. 11).



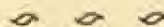
A Saxon spearhead found in the Thames near Boulter's lock, Cliveden, has been deposited in Reading Museum. (*The Times*, 16 December, p. 12).



A 'Woodhenge' at Caebetin on the Kerry Hills, Montgomeryshire, has been excavated by Mr Noel Jerman of the University of Wales and Mr R. U. Sayce, of Oxford University. Evidence shows that the circle of wooden posts was about 19 feet in diameter. From pottery associated with the burial which was found the site is dated as Middle Bronze Age. This is the first instance of a wooden circle in Wales. (*The Times*, 24 December, p. 13).



A Roman mosaic pavement, of fine design and workmanship, has been found at Nyon, on the Lake of Geneva. (*The Times*, 22 December, p. 15).



Various expeditions are arranging to continue work in Egypt this season. The Egypt Exploration Society will be at Tel-el-Amarna, and in conjunction with the Oriental Institute of Chicago will resume the recording of the bas-reliefs at the Temple of Abydos. The French Institut will again make the tombs of Deir-el-Medinet, near the Valley of the Kings, its principal study. (*The Times*, 22 December, p. 15).



In the course of digging on the site of the Pewterers' Hall in Lime Street, City of London, interesting evidence of a Roman roadway was revealed in successive layers of gravel for a depth of eight feet. There was nothing to indicate a paved surface. The lowest layer was a brick-earth stratum, which has been generally met with in the City area of Roman times. The roadway was more than 30 feet wide. (*The Times*, 15 December, p. 11, with plan).

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Illustrations of the Greco-Roman city of Apamea in Syria, showing mosaics, the main avenue, and the ruins of the temple of Bacchus were printed in *The Times*, 31 December. The excavations are under the direction of Professor F. Mayence, of Louvain University, from whose information a detailed report was printed in *The Times* for 30 December, p. 9.



A systematic survey of British hut-villages in West Cornwall is being pursued by Lieut.-Col. F. C. Hirst, who has already found evidence of ten sites in the parish of Zennor (near St. Ives) and observed indications of others, though no actual remains can be seen. It is now proposed to survey the adjoining parish of Morvah. (*The Times*, 20 January, p. 17).



A report on a bronze axe-head found by Mr Guy Brunton at El Matmar, south of Assiut in Middle Egypt, and dated as Middle pre-Dynastic (c. 4000 B.C.) is printed in *Nature*, 22 October. The axe-head has been examined by Mr H. C. H. Carpenter, of the Royal School of Mines, for its structure, analysis, and hardness, with some very interesting results. The report includes illustrations of the microstructure of the axe.



Excavations conducted at a stone circle at Old Keig, Aberdeenshire, by Prof. V. Gordon Childe have yielded sherds of pottery of Hallstatt period. (*Glasgow Herald*, 13 December).



A number of Egyptologists have come to an arrangement whereby drawings of all pottery found will be sent to one centre and, when sufficient have been collected, will be issued in the form of *corpora* covering the whole range of Egyptian pottery. Cards have been printed and are supplied to excavators. On one side of the card is pasted a drawing or print of the pot, and on the other are a series of headings under which is entered all the information required by the Editor of the *corpora*.

This should make a valuable contribution to scientific archaeology and it is gratifying to note that the list of Egyptologists not participating is short. The Egyptian Antiquities Service and all Nationalities working in the country are represented. Anyone interested can obtain specimen cards and information from the Editor, Mr G. L. Harding, 200 Euston Road, London, N.W. 1.

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Articles of special archaeological interest in recent numbers of the *Illustrated London News* are :—

Discoveries at the necropolis at Vounous, in Cyprus, relating to the worship of the Snake-God, a Bronze Age Cult. 10 December 1932.

Stone Age art of Scandinavia from rock-carvings at Vingen, north of Bergen, Norway. 17 December.

Maya religious art in Guatemala. 24 December.

Reproductions of the drawings in the British Museum of early Christian fresco heads from the catacombs, including the possibly prototype portrait of Christ, and a head of St. Paul. 31 December, with an article on the drawings by Rev. C. C. Dobson, who also wrote one for *The Times*, 24 December, p. 9.

Illustrations of the Tutankhamen shrines, now in Cairo Museum. 7 January 1933.

Discoveries in Ithaca by the expedition promoted by Sir Rennell Rodd, during which considerable finds of votive and other pottery were made. 14 January.

Pottery, jewelry and weapons from Damghan, on Tepe-Hissar, in North Persia, where a succession of cultures illustrate conditions of life and art in Iran. 28 January, with notes by Dr A. Upham Pope, who also describes the finds in an article in *The Times*, 28 January, p. 6, which includes particulars of the several Expeditions at present excavating in Persia.



Some remarkable sculptures have been found at Persepolis, the capital of the Achaemenean kings of Persia, by the University of Chicago Expedition which is under the direction of Dr Ernst Herzfeld. They include a series of wall relief-sculptures illustrating in great detail incidents in court life, as well as inscriptions of historical interest. Particulars are printed in *The Times*, 25 January, p. 9, and 4 February, p. 9, with illustrations on p. 14.

Reviews

STRASBOURG-ARGENTORATE : préhistorique, gallo-romain, et mérovingien.

By ROBERT FORRER. *Strasbourg, Librairie Istra, 15 rue des juifs, 1930. Two vols., pp. 884, 610 illustrations and 154 plates.*

'It is gratifying, but inconvenient', says Dr Forrer, 'to live in historically momentous times'. The printing of these two large volumes was begun in 1913 and only finished in 1927; various kinds of paper, ink and type are found in their various parts, and, of course, what was printed under a German government was printed in German, what under a French government, in French. One cannot blame the author if the volumes are somewhat forbidding in appearance. The reader who will attack them resolutely will soon forgive their faults and admire their merits.

Prehistoric and Merovingian Strasbourg only occupy a few pages at the beginning and end: the vast bulk of the work concerns the Roman site. As becomes an author in Dr Forrer's position, he has relied mainly on two classes of material: excavations, with their evidence concerning structures, and finds. The book is really a *corpus* of these two types of material. This is what makes it ponderous and unwieldy in bulk; but the material is so interesting in itself, and so admirably treated, that its full publication is more than justified. At the same time, Dr Forrer himself recognizes that there is room for a much smaller book on Roman Strasbourg in which the material here detailed should be digested and the conclusions to be drawn from it set out in simple terms.

Of systematic excavation, little can be done on so ancient and crowded a site. But Dr Forrer has let slip no opportunity of looking into whatever holes and trenches have been dug for many years past, and noting their archaeological significance—the kind of work which we have only lately undertaken in London: and he here reproduces scores of sketches and stratification-diagrams made in the course of such observations. The chief outcome is a remarkably full general account of the ancient fortifications. An Augustan auxiliary fort remains somewhat conjectural, in spite of some relics of what may be its cemetery; but we are on firmer ground with the earth-and-timber rampart of Legio II Augusta, early in the first century A.D. This legionary fortress, evacuated when the legion went to Britain in 43, was later tenanted by various units and detachments, and there is some evidence of a stone rampart-wall added during this period. A new phase begins with the coming of Legio VIII Augusta, about A.D. 80; this legion added a revetment of stone to the earth bank, entailing the filling-up of its ditch and the digging of a new one further out. Unfortunately this wall is not dated; Dr Forrer is prepared to place it anywhere from the late first century to the late third; but the brick-stamps in its facing-courses seem to the present reviewer rather early than late in that long period. Lastly, a new wall studded with frequent towers is added, built on to the outer face of the old one: it is largely made of re-used material, and contains timber frames such as are found in our Saxon Shore forts; it follows the outline of the old fortress-wall except at one part where it projects slightly beyond it, and Dr Forrer thinks that its builders did away with the earthen bank that lay behind the earlier wall. Its construction is again undated: but it belongs to the familiar series of late towered walls which we are in the habit of ascribing to the end of the third, and to the fourth, centuries.

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The same careful observation of detail has resulted in the recovery of much information concerning the street-plan inside the fortress and the *canabae* outside it. Good houses with excellent frescoes have come to light ; there is much interesting detail about house-construction ; there are temples, 'giant-columns', cemeteries, riverside quays, etc. The plotting of coin-finds gives evidence of a reduced population in the fourth century, when the suburbs were deserted and the people took refuge within the walls.

About half the book is an illustrated catalogue of finds, grouped under such headings as coins, potters' stamps, weapons, evidences of industry, sculpture, etc., treated with a completeness and a degree of learning that could be expected only from a very able archaeologist and the curator of a great museum. It is inevitable that, in such a work, readers should find themselves differing from the author here and there on points of detail or detecting minor inaccuracies ; but to enumerate such things would serve no useful purpose. A reader lays the book down with the feeling that he has been personally conducted through innumerable trenches by a guide who calls his attention to every significant feature and allows him to draw his own conclusions, and then through the cases and galleries of a great local museum by the same guide—always pointing out the significant thing, but never thrusting forward his own interpretation of it. At the end, one feels that one knows Strasbourg: that one's ideas about it are one's own ideas, got from a first-hand study of the evidence ; and that one knows not only the place, but the learned and courteous and self-effacing guide who has achieved this extraordinary feat of demonstration.

R. G. COLLINGWOOD.

EUROPE AND CHINA: a Survey of their Relations from the earliest times to 1800.

By G. F. HUDSON. *Arnold*, 1931. pp. 336 and 4 maps. 15s.

This is a wonderful book. In time the author ranges from Aristæas of Proconnesus to Lord Macartney's embassy ; in space right round the world both eastwards and westwards ; in subject-matter from the ultimate bases of politics and economics to the detail of Chippendale chairs. Bringing together facts from the most diverse sources, he focuses them so that they make light instead of darkness. Most of his book is outside the purview of ANTIQUITY and yet one is led on through the ages, so that antiquity is seen to survive until the industrial revolution gave Europe the power to end it throughout the world, even ultimately in China. His great theme is that in European culture, owing to its Hellenic origin, trade has always been, more or less in different ages, necessary and respectable, whereas in the three other civilizations of China, India and Western Asia, founded on a land-revenue economy, it was essentially an extra, and the trader socially inferior not only to the governing class, but to the tiller of the soil. Hence in Europe commerce was a real power ready to make use of mechanical invention as a means not only of economic exploitation, but of political and cultural conquest.

For the early period it is interesting to note that Mr Hudson accepts the story of the northeastern or rather eastern trade-route in the sixth or seventh century B.C., as reported by Aristæas, preserved by Herodotus and interpreted by Tomaschek, and sees in his Hyperboreans the Chinese. After this first faint gleam of knowledge we are mostly occupied with the silk trade until the time of Justinian, and nowhere have I met so clear an account of it and of its economic and political effects. The journeys under the *Pax Tatarica* are scarcely our business, nor yet the way in which the desire for spices drew European explorers not only to round Africa, but to find America ; still less the rivalries of the XVIIIth century or the wonderful achievements of the Jesuits.

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But I cannot refrain from pointing out that Mr Hudson for the first time brings home to us how seriously our XVIIIth century was interested in China, so that its political ideas came near to being as deeply influenced by the Chinese model as was its art. It is curious that Mr Hudson has not quoted the romantic history of the flying gallop and its return to Europe, as set forth by S. Reinach. I have not noticed any other such omission in his book.

E. H. MINNS.

MANUEL D'ARCHEOLOGIE ORIENTALE. Tome III Histoire de l'Art (fin). Premier millenaire jusqu'à Alexandre. Appendices. By Dr G. CONTENAU. Paris: Auguste Picard, 82 rue Bonaparte, 1931. Price not stated.

With this volume Dr Contensu completes his handbook, and it preserves to the end the merits of all his work. A wide knowledge of the relevant literature, clear exposition and a sound critical judgment combine to render the *Manuel* indispensable. For the provinces with which it deals it replaces Perrot and Chipiez. Dr Contenau has made every effort to bring his work up to the date of publication, and includes discussions of the early painted pottery from various sites, of the objects from the 'royal tombs' at Ur, and of pottery and bronzes from sites in western Persia in the appendices.

It is always easy to find fault with handbooks, to point out that this or that has been neglected or inadequately treated, to select passages where the wording is erroneous or misleading. It is therefore not surprising that in dealing with so large a territory, and with such a mass of material, much of it new and more of it hardly discussed from the comparative point of view, Dr Contenau has exposed himself to criticism. Architecture for instance is but scantily treated. The discussion of the Nimrud ivories might lead the reader to suppose that one Nimrud hoard consisted of ivories that are exclusively foreign, not Assyrian, which is not the fact; and no mention is made of Professor Poulsen's acute distinction between the ivories of an Egyptianizing style which probably are Phoenician, and the totally different ivories which can be compared with the ivories from Ephesus and elsewhere. So who will may continue.

It is more useful, and more congenial, to point out the skill with which Dr Contenau has traced the comparable elements in the subjects and the treatment by Hittite, Phoenician, Assyrian and Persian artists. The world with which he deals, though extensive from the geographical point of view, was inhabited by men with a point of view as limited as a single nation's, in many respects. The *Manuel* will enable every reader to form an impression of the essential unity in the diversity of these national arts of the ancient Near East. Fascinating problems of course present themselves. Why did the passionate interest in animal forms common to the early periods at Susa and in Sumer pass to Assyria and Mitanni, during the second millennium, to find its most remarkable expression in the palaces of Nineveh and the bronzes of Persia and the Caspian area, whereas the Babylonians of the second millennium and later avoided animal designs on their seals, and only used stylized forms in architectural decoration? Has any critic of Hittite sculpture realized sufficiently that the formal *differentia* are due to the nature of volcanic stone? Will the truth, obvious from these volumes, that in the early Sumerian period sculptors and modellers experimented with high relief, and with the representation of the human form in action, only finally to refrain therefrom and found a tradition which imposed limitations that were voluntarily accepted, percolate into art histories? Above all, shall we ever be able to criticize and appreciate these monuments, *disjecta membra* at best,

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since we can only grope after, and never fully understand, the ideas—mainly religious, of a time when religion was pseudo-philosophy, pseudo-science, in fact almost mental activity—which inspired them? Are, that is, subject and style such safe archaeological guides as we incline to assume as certain, in this particular field, where so little was forgotten, so little learned? Dr Contenau, wisely, has not discussed such points, but we should all be thankful to him for providing text and illustrations, though the latter are not intended to be more than *pro memoria*, which enable us to dream about them.

SIDNEY SMITH.

BETH-PELET I. By FLINDERS PETRIE. *London: British School of Archaeology in Egypt and Bernard Quaritch, 1930. pp. 26 and 72 plates. 50s.*

Whether or no Sir Flinders Petrie is philologically justified in his identification of Tell Fara with the Beth-Pelet of the Old Testament, it is to be regretted that he has given his report this title. It was with an equal assurance that he once identified Tell el Hesi with Lachish, an equation which is now almost universally denied by archaeologists; and it is at the least equally likely that his conjecture in the present case will be refuted by later discoveries. It is, in fact, a curious declension from that strict and even frigid scientific method with which this distinguished excavator has made us familiar, that he should have prefixed a conjecture—it is really nothing more—to the publication of such painstaking and detailed research. Even without the allure of a Biblical name and the advertisement of David's famous body-guard of Pelethites (once more the connexion is quite conjectural), Tell Fara has provided a mass of evidence well calculated to interest the student of Palestinian history. Situated in the Negeb some 18 miles south of Gaza, this fortress commanded the trade routes from north to south and from east to west. The actual site was an enormously strong one. On the east it over-hung the Wady Ghuzzeih lying a hundred feet below, while to north and south it was cut off by ravines from the surrounding plateau. Only on the west was it exposed to attack; and here its Hyksos occupants defended it with a trench 80 ft. in width from edge to edge, a method of fortification peculiarly their own and strongly suggestive of the fortified 'tepe' camps of Central Asia, their most probable homeland. That these 'Shepherd Kings' were strangers from a far land has, of course, long been known, but the evidence of Tell Fara has added very considerably to our knowledge of them. It is now plain, as Sir Flinders Petrie observes, that they were not a whole population on 'trek' to a new home but a ruling caste accepting the culture of the countries in which they settled. In Egypt they became Egyptianized: in southern Palestine their utensils were those common to Syrian lands and only their scarabs reveal their connexion with the Delta. That this connexion followed hard on the xiii Egyptian Dynasty (the first Hyksos Dynasty is the xvth) is now also established by the finds at Tell Fara, and the important conclusion is hence inevitable, that the xiii and xvth and xivth and xvth dynasties were actually contemporary with one another, and not, as has been assumed, in chronological succession. For the archaeologist a curious feature of this excavation was the entire absence of those black 'pricked' vases regarded as so typically 'Hyksos' in the dating of other sites. Sir Flinders Petrie attributes this to the closing of the sea-routes from the North, but the presence of these vases elsewhere in Palestine seems to demand some other explanation. Actually it is not impossible that further excavation of the Tell will disclose some specimens, and that their failure to appear hitherto has been a mere caprice of fortune.

Another important feature of the report is the new light which it casts upon the

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Philistine occupation. It has been usual hitherto to regard these invaders from the Aegean as having arrived in Palestine at the beginning of the 12th century B.C. The discovery of five imposing Philistine tombs of which the earliest must be dated back to 1320 B.C. has completely upset this calculation and compelled us to revise our theories. The bearing of this new discovery upon the story of JUDGES has been well discussed by Prof. Garstang in his latest book. The use of pottery coffins with half-lids bearing a mask adds a very great interest to these finds. Sir Flinders Petrie quotes examples from the Delta, but it would have been still more apposite to mention those recovered from Beth Shean, where the garrison appears to have been of 'Aegean', if not of Philistine, origin.

In the later history of the site the evidence of the walls built by Shishak provides, perhaps, the most notable addition to our knowledge. The position of this monarch, in the excavator's words, 'has been greatly underrated. Not only did he conquer Jerusalem, but he was the greatest of builders in South Palestine. Tens of thousands of men must have been occupied in brick-making and building, for the great wall twenty-two feet thick, and the town buildings of Beth Pelet, also the entire rebuilding of Gerar'.

It will be apparent even from this brief *résumé* that Tell Fara has already yielded results of the greatest interest and significance. It is scarcely necessary to add that they are here presented to the student with that fulness, accuracy, and clearness which we have learned to expect from the publications of the British School of Archaeology in Egypt. The excellent air photograph of the site may, however, be given a special commendation.

W. J. PHYTHIAN-ADAMS.

ENGLISH COINS : from the seventh century to the present day. By G. C. BROOKE, Acting Deputy Keeper of Coins, British Museum. Methuen, 1932. pp. XII, 277 and 64 colotype plates. 22s. 6d.

Until a year ago there existed no up-to-date handbook on English coins to which the collector of moderate means or the reader who found himself interested in English numismatics, either from the historical or the artistic point of view, might refer. There was then no alternative but to seek for information in the publications of the Royal Numismatic Society, and the British Numismatic Society, or the Catalogue of English Coins in the British Museum (which extends no further than the Norman kings). Though these works must still remain the ultimate authorities for the study of English coinage it is no longer necessary to expend valuable time in searching through them for the detailed justification of an opinion when a summary statement of conclusions would suffice.

Mr Brooke has endeavoured to produce a book which would satisfy both the requirements of the general reader and the everyday needs of the collector, and he is to be congratulated on the degree in which he has succeeded. Each chapter contains a brief summary of the period in question followed by an enumeration and description of the different denominations and the principal varieties. These descriptions are models of lucidity and do not presuppose a knowledge of the literature of which the inaccessibility has been the occasion for the writing of the book. No attempt is made to reproduce the lettering of the inscriptions but allusion is made to the more important alterations, which can easily be traced in the plates. The inclusion of lists of moneys of the various mints is very welcome.

Although important discoveries have been made in recent years with regard to 17th century numismatics, the chief interest of the book is inevitably centred in the treatment

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of the earlier period. A warning is given against connecting the name *styca* (used to translate the widow's mite in the Lindisfarne Gospels) with the Northumbrian coins with which it has generally been associated, and the suggestion is made that the term is more likely to denote the debased late Roman or post-Roman *minimi* of which such numbers were discovered in the Lydney hoard.* Perhaps it would be kinder to believe that *styca* had no precise meaning than to regard the translator as envisaging the possibility of anyone expending valuable candle-power in the attempt to recover a coin of such infinitesimal dimensions.

It has long been realized that the written records of the Anglo-Saxons have in certain cases to be supplemented by evidence derived from coins, but the use of this source has led to many disputes. Thus Mr Brooke would like to fill the gap in the series of kings of Kent between the deposition of Eadberht in 798 and the accession of Cuthred in 801 with a king Eadwald whose pennies have hitherto been attributed to East Anglia, a kingdom to which a number of kings known only from coins have been attributed, often for no better reason than that the literary evidence for its history at this period is quite lacking. In the same way Beonna is taken from East Anglia and given to Northumbria (though lately a Mercian origin has been suggested). It is generally recognized that certain of the types (sometimes borrowed from the Romans) which were used by the later Anglo-Saxon kings have reference to contemporary events. Mr Brooke warns us that it is easy to over-elaborate this theme and perhaps it might have been better for this reason to abandon the supposed allusion to the coming of the Millennium found on the rare coins of Ethelred II bearing the *Agnus Dei* and the dove.

If the text provides much food for thought for the historian the excellent collotype plates are equally a feast for those interested in the artistic development of the coinage. The only complaint which may be made with regard to them is that the novice may find difficulties in distinguishing coins in different metals when illustrated on the same plate without the differentiating *AU*, *AR* and *AE* usual in numismatic works.

C. C. OMAN.

FIELD ARCHAEOLOGY: some notes for beginners issued by the Ordnance Survey. Professional Papers: New series, no. 13. *H. M. Stationery Office*, 1932. pp. 34. 6d. 1932.

ARCHAEOLOGISCHE KARTE DER RHEINPROVINZ: Ortskunde Trier-Mettendorf. By Dr JOSEF STEINHAUSEN. Bonn: Peter Hanstein, 1932. Published by the Gesellschaft für Rheinische Geschichtskunde as the third part of their Historical Atlas of the Rhineland. pp. 383, 38 diagrams and 32 plates; six maps in separate folder. Price not stated.

It is being realized more and more clearly that archaeology consists in the study of the distribution of human cultures in space as well as in time, for as the mathematicians tell us with so much circumstance one cannot be said to exist without the other. This conception of the realm of archaeology as one of cultures in space-time accentuates the importance of mapping, both as an instrument of active research and as a most accurate method of record.

In this respect we in this country are fortunate, since it has been the traditional

* See R. E. M. Wheeler and T. V. Wheeler, *Report, Lydney Park* (Society of Antiquaries, 1932), p. 116 ff, and plates.

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policy of the Ordnance Survey to indicate antiquities upon its published sheets. The implementing of this policy has been vastly accelerated and improved by the establishment of an Archaeology Officer. It will be realized, however, that in default of further official assistance the Archaeology Officer is forced to depend largely on the observations of the general public. The Professional Paper which we are noticing here is designed primarily for the education of such observers and the standardization of their map entries. As such it supersedes a publication of 1921. The improvements introduced in the new handbook more than justify the extra price. Apart from its more convenient format very useful bibliographies are given. Recent advances in knowledge are responsible for several additions or modifications in matter. Thus air-photography has been responsible for the inclusion of a new class of earthwork, the earthen and wooden circles, of which Woodhenge and the one near Norwich are recently discovered examples. Again a new class of camps has been added by the general recognition of the interrupted ditch-type, of which Windmill Hill and the inner camp at the Trundle, Goodwood, are classic instances. Pillow-mounds are now thought in many cases to have been no more than old rabbit warrens. Practical work in the field has caused the addition of an arbitrary division of stone circles into three classes or categories for the purposes of mapping. Finally we might add that, although designed primarily as an aid to the more accurate recording of our national antiquities, these notes are well worth having for private edification and especially for the addition of the bibliographies.

The second publication represents but a small part of an ambitious scheme for mapping the antiquities in the Rhineland. The exhaustive and meticulous character of the work may be gauged from the fact that the present part is concerned with an area of considerably under 500 square miles, occupying the southwest corner of the Eifel country. Yet there are 383 closely packed pages of entries in the gazetteer arranged under place-names in alphabetical order. Loose finds, and sites excavated or unexcavated, are carefully noted together with explanatory diagrams and a full bibliography in the text. In a separate folder is a series of maps, indicating in different colours finds and sites of successive chronological divisions. As records these are admirable, though it is regrettable that the archaeological data had to be overprinted onto such unsatisfactory backgrounds. The method of layer-colouring has clarified our own maps so greatly that the simulated relief effect achieved by elaborate hachuring must be regarded as definitely archaic and out-moded. In this respect the archaeological mapping of the Ordnance Survey based on clean open maps with coloured relief is infinitely more satisfactory. The basis of the Roman Britain and other archaeological maps recently published by the Ordnance Survey is further enriched by the indication of the relevant surface-geology as reflected in natural vegetation. At the same time we in this country have still to contemplate the gazetteers which accompany the archaeological maps of the *Gesellschaft für Rheinische Geschichtskunde* with admiration and, if we are honest, with envy.

J. G. D. CLARK.

ROMAN BRITAIN 1914-1928. By Sir GEORGE MACDONALD. *British Academy Supplemental Papers* no. VI. Humphrey Milford, 1931. pp. 114 with 23 text-figures and 16 plates. 7s. 6d.

The publication in German of Sir George Macdonald's survey of Romano-British archaeology marked an important epoch in post-war studies on Roman Britain. For it did more than present to the foreign student a chart of British archaeological progress:

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it gave to the excavator at home an opportunity of learning what his fellows were doing and of seeing his own work in its proper perspective. For such reasons as these a demand arose that the work should be made more accessible to English readers, and Sir George Macdonald has met this demand by re-issuing it in English with important new matter as a British Academy Paper.

Thus the book takes its place as a successor to Haverfield's summaries of Roman Britain in 1913 and 1914. But as the author is treating of work done over a period of fifteen years, he has seen his way to give rather more space to the historical context of work done than the conditions of a yearly summary allowed Haverfield to do, and he has observations to offer on the general course of Romano-British history. These observations are as good as anything in the book: perhaps we may select the explanation of the Lancashire-Cumberland road system and the examination of the evidence for the abandonment of Britain as conspicuous examples of his lucid and suggestive treatment.

The qualities which distinguished Haverfield's work—sobriety and caution in hypotheses—are very noticeable here; and in dealing with a subject where conclusions are liable to continual modification, such caution is very much in place. The reviewer is bound to state that he read the book carefully to see whether any conclusion advanced had been refuted by subsequent discoveries, and he could not find one: it would appear that archaeology itself pays a tribute to the coolness of judgment and the freedom from unsure speculation which this book displays.

The material is handled by chapters which deal with the Legionary Fortresses, the Town Walls, the Auxiliary Forts in the various military theatres, the Saxon Shore, Civil Life in Town and Country, with some brief remarks on new epigraphic finds and on the general literature (where a well-deserved tribute is paid to Cheesman). The evidence from each site is concisely displayed and the chronological development indicated. The chapter on the Antonine Wall and Roman Scotland reaches, of course, a very high level, though the author is perhaps too modest over his own work at Mumrills, the report of which must remain for many years the standard authority on Roman bathing establishments. We note that the author clings firmly to his view of a Roman occupation of Scotland extending to Trajan's reign and is unmoved by the doubts which Mr Birley has expressed.

The chapter upon the Towns shows clearly the two waves of urbanization under Agricola and in the early second century; and here an admirable summary of the excavations at Wroxeter whets our appetite for Professor Atkinson's long-promised report. A date of c. 65 is accepted for the walls of London and Colchester, and the analogies between the Balkeine Gate of Colchester and various first-century town gates is stressed; but a plan of the Balkeine Gate might well have been included, as it is not only 'unique in Britain', but in some of its details unique apparently in the whole Empire. An informative section of the Caerwent town-wall makes us hope for a re-examination of the Silchester walls, which present several similar features.

A brief chapter describes work done in the country districts (Villas, Temples, Potteries); and here a criticism must be entered. The country life of the Province is allowed only 12 pages as against 73 devoted to military works; and of these twelve villas have only two pages, villages none at all. This may suggest, especially to a foreign reader, either that the Countryside in Roman Britain was unimportant, or that experts are not alive to its importance; and neither of these implications is true. The interesting remarks on Traprain make one regret that no similar treatment is given to a South of England native site such as Ham Hill or Park Brow. The distinction between

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Celtic and Saxon fields is emphasized by the author: but it should be remembered that Mr Crawford's aerial work was confined to the area of the native settlements, and that in regard to the origin, development and end of the villa-system we are almost as much in the dark as our predecessors.

But it is ungenerous of a reviewer to carp at the omission of what particularly interests him: the book is full of good things and not least valuable are the full bibliographical references which it supplies.

Finally, a tribute must be paid to the publisher. Type, make-up, and illustrations are alike excellent: and how a book of this kind can be published for no more than seven shillings and six pence, it is difficult to imagine. C. E. STEVENS.

THE FIGHT FOR AN EMPIRE: a translation of the third book of the *Historiae* of Tacitus. By W. J. WOODHOUSE. Sydney, 1931. London: Australian Book Co., 16 Farrington Avenue, E.C. 4. 1932. 6s.

Professor Woodhouse has gone far to success in the hard task he has set himself. This is how he translates: 'Hardly had Martialis got back to the Capitol, when the maddened soldiery was on them. Commander-in-chief was none; each man took orders from himself alone. Swiftly through Forum swept the mass of men, past the temples rising above it; then breast the hill in front, right up to the outermost gate of the Capitoline fortress'. It is clear what he wants: the terseness, the sharpness, the biting edge of the sentence; the avoidance of verbosity on one hand, commonplace on the other. The danger is that choice, unprosy diction may decline to Wardour-Street; that happens here and there, and especially—an orgy of it—in the summary or 'Brief' prefixed to the tale. But it is a fine translation: take any chapter and try to better it, and you will find it hard. Introduction and notes are excellent—short and full of matter, like the text itself. R. G. COLLINGWOOD.

THE TRANSITION FROM ROMAN BRITAIN TO CHRISTIAN ENGLAND (A.D. 368-664). By GILBERT SHELDON. Macmillan, 1932. pp. xxiii, 219, with map. 10s.

This volume is the last memorial of a man whose memory deserves to be kept green: a man crippled from babyhood with infantile paralysis, unschooled and uncolleged, but living for over sixty years an active and happy life of travel and study, a lover of books and a lover of the English country. In prefatory notes to this work—which he completed only a few months before his death—his sister, Miss Lilian Sheldon, and Mr Walter de la Mare have given us a charming picture of his life and personality, a picture confirmed by the pages of the book itself.

Such a book, written in such conditions, is not easy to review. One would rather extend the good rule, *de mortuis nil nisi bonum*, from the writer to his book, and be content with a testimony, a sincere one, to its merits. But, after all, the book is not dead: and it is a poor tribute to an author's memory if one refuses his work the honour of being candid about it. First, then, it is the work of an amateur in both senses: a labour of love, done with zest and enthusiasm, but also done without the severe discipline of the professional. The author knows his subject chiefly from more or less recently published books, and even of these there are some, of first importance, which he does not know. To take one instance only, he has much to say of the Romanization of Britain, but does not quote, and seems not to have read, Haverfield's classical essay on that theme. The

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periodical literature he hardly touches : for instance, he quotes only two articles from *Archæologia*, and none from the *Journal of Roman Studies*. This is not because, knowing the material, he refrains from a display of bibliographical window-dressing ; one who had read widely would not assert that the Antonine Wall was reconstructed by Severus, and would know that the book from which the assertion was taken is not trustworthy ; nor would he turn the well-known Irish writer Tighernach into 'Tigernach', one of the 'Welsh annalists'. In a word, the book is not a learned book, and must be judged on merits of a different kind.

Secondly—not, perhaps, rigorously distinguishable from the first point—the logic of the argument is often impaired by the vice of special pleading. The whole book is a plea for extensive Romano-British survivals in Anglo-Saxon Britain : and the division between the ecclesiastical provinces of Canterbury (originally London) and York is explained as based on 'the old-time division of Britain under the Empire into a southern and a northern province'. What division is meant ? The Severan divisions of Britannia superior and inferior were quite different, and in any case were superseded by the still more different fourth-century sub-divisions recorded in the *Notitia* ; the military spheres of the Dux Britanniarum and the Comes Litoris Saxonici were in no sense provinces. It is difficult to attach any definite meaning to such words. Again, the author is trying to minimize the extent of the early Anglo-Saxon kingdoms and settlements, and argues that the victories of Ethelfrith cannot have extended his dominions west of the Pennines because Loidis and Elmet remained independent. But Loidis and Elmet were in the south ; how does this prove that there was no advance in the north ? And, even in the south, how does it prove that Loidis and Elmet, for their few remaining years of independence, were not *enclaves* in Northumbrian territory ? Are we to reject the story of the foundation of Rhodesia because the Boer States on the Vaal and Orange rivers remained independent ? Again, the writer wishes to prove the survival of Romano-Celtic civilization on the borders of Wales : for this, he says, there is 'strong archaeological evidence', and this evidence turns out to consist of hanging-bowls, which, through hastily reading a sentence in Baldwin Brown, he imagines especially common in that region. Again, he wants to prove the widespread continuance of a Roman tradition of mason's work. Having argued for such a survival at Canterbury, he argues for another at York, the evidence being that a stone church was built there under Paulinus's direction, and 'nothing is said of the importation of workmen'. When Ethelberga and all her *entourage* (including Paulinus himself) came from Canterbury, could any *argumentum e silentio* be weaker ?

But if we cannot look either for sound scholarship or cogent reasoning, it does not follow that the book is devoid of value. Mr de la Mare well refers to Mr Sheldon's earlier historical essay (*From Trachway to Turnpike*) as a 'romance'. An historical romance need not have deep learning, and it need not have subtle logic, but it must have intuition ; and that is Mr Sheldon's great gift. He has read enough about his subject to see that the old view, according to which Anglo-Saxon England owed everything to its Teutonic immigrants and nothing to its Romano-Celtic predecessors, is damaged beyond repair. He sees that the work now being done on the subject consists, in the main, of an attempt to throw bridges here and there across the gulf which used to divide Roman Britain from Anglo-Saxon England. The idea that there is, after all, a genuine continuity between these two, has seized upon his mind, and he has vividly imagined a picture of the one changing, gradually and almost imperceptibly, into the other. Snatching at any straw of evidence that would strengthen his picture, he persuades himself that

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the supposed gulf is just an illusion. This is not so ; the thesis of the book is hopelessly one-sided, an exaggeration based on facts unfairly selected and evidence unduly strained. Yet it is all to the good that such an exaggeration has been put forward. Instead of starting from the old 'clean-sweep' view and asking where and why we must depart from that, we can now start, alternatively, from the opposite end : we can take Mr Sheldon's thesis and ask where and why we must refuse to accompany him. For serious students, that is an advantage.

R. G. COLLINGWOOD.

CHRISTIAN ART IN ANCIENT IRELAND : selected objects illustrated and described. Edited on behalf of the Irish Free State by ADOLF MAHR. *Dublin : Government Publications Sale Office, 1932. Vol. 1, pp. xxvii and 80 plates. 21s.*

This album may fairly claim to be the most important publication of 'native' archaeological material that has ever been issued by a national museum in these islands. That, of course, sounds a ridiculous and hyperbolic thing to say, but it happens to be true. I know only too well the need in all departments of our archaeology for adequately illustrated catalogues of domestic antiquities, and I greet this volume with hearty congratulations. It is, indeed, very much to the credit of the Free State Government that a great opportunity has not been missed. It would have been only too easy to issue, as a sufficient compliment to the Eucharistic Congress, a picture-book containing a few illustrations of notable objects ; but the Royal Irish Academy and the Editor, Dr Mahr, have seen to it that the funds available were used for the production of a book of much more than 'souvenir' value. It is true that we are modestly asked to regard it as merely an attempt towards a survey of Irish metalwork (together with a few plates illustrating MSS and ecclesiastical architecture), but the attempt is obviously going to be so successful that I shall brush this disclaimer aside and declare roundly that the Editor has collected an invaluable and comprehensive *corpus* of material that will be a permanent delight to the student. What less can be said of a book that illustrates sumptuously and for the first time the rich store of Irish material in the Scandinavian museums side by side with the metalwork from these islands ? The album is, in truth, an extraordinary achievement, for the Editor and his Committee tell us that they had only five months in which to prepare it ; and all English readers will readily endorse Dr Mahr's tribute to the continental museum-officials who responded so quickly and so effectively to his appeal for help.

The great thing was to seize at once and to make the most of a chance that might not be repeated. It is a small thing that the work appears with some blemishes that are the result of its over-hasty production, and we need not boggle at a plate which is upside down or at a few mis-spellings in the legends. More serious, however, is the effect of this haste upon the plan of the book, which has real, though unavoidable, disadvantages. Thus the work is to appear in two parts, and while the first volume, now published, contains 80 out of the 130 plates, the descriptions and bibliographical details for these 80 are kept back for the second volume. In the meantime we have only the Editor's all too short 'Introduction' as an aid to the study of the illustrations. Dr Mahr describes briefly what he considers to be the four main styles in early Irish art (Vernacular Celtic or 'Scotic', Hiberno-Viking, Last Animal Style, and Hiberno-Romanesque). I think that his dates and distinctions are in the main sound, though the Vernacular Style is really something more than the characteristic of a mere phase, and it most certainly deserved fuller treatment, in particular as regards the origins of the favourite ornaments.

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Above all, I feel that Dr Mahr might have clarified the position had he made some reference to the problem of the Lindisfarne Gospels. But I expect he thinks, as I do, that it is very dangerous for any of us to write about Keltic art before we are in possession of Mlle. Henry's long-awaited book. Nevertheless he has made one very good point in advance by emphasizing the probability that Gaelic expansion may be responsible for the post-Roman revival of Keltic art, and he does well to remind us that the total loss of the output of the 'perishable' crafts (woodwork, textiles, leatherwork, basketry) must be taken into account, not only in Ireland but also in Britain.

T. D. KENDRICK.

A HISTORY OF SURNAMES OF THE BRITISH ISLES. By C. L'ESTRANGE EWEN. *Kegan Paul, Trench, Trubner and Co., 1931. pp. xx, 508. 25s.*

This is the fullest attempt which has yet been made to deal with the surnames of the British Isles on a comprehensive scale. To judge from the copious bibliography at the end of the volume the author has consulted most of the writings on the subject, of all periods and of all countries. He has also been through a great deal of material both printed and manuscript from Anglo-Saxon times to the present day, and this has enabled him in most cases to trace with success the history of the names with which he deals.

The author begins with a long discourse on the history and origin of languages and names, with a discussion of the different races by which this country has been peopled during historical times. Beginning with the Old English period, he deals in successive chapters with documents illustrating the gradual development of the surname from the 10th to the 17th century. The number of personal names said to survive from Anglo-Saxon times is probably not so large as the author would have us believe. Wolsey may derive from a place-name rather than from the old personal name Wulfsgie.

Mr Ewen is most at home with names of Romance or Germanic origin, but he has also attempted, in many cases with success, the interpretation of Celtic surnames of Welsh, Gaelic or Manx origin. His treatment of Cornish names is much less satisfactory; he is evidently not aware that hardly anything that has been written on this subject is of any value, and that much is entirely worthless. Many of his supposed Cornish names can easily be explained from other sources, e.g. Bullivant, Forder, Henty, Kimber, Quick. Pennycomequick, a place-name found in Devon and elsewhere, is no doubt a nickname for a prosperous farm. It cannot in any case be for 'head of the combe creek', for the Cornish definite article is *an*, not *y*. Occasionally his transcriptions of names in early documents have led him to wrong conclusions. He cites the surname *atte Boscall* from a Devon document as a proof of quite late Cornish influence in that county. But this surname, which occurs under Axmouth in East Devon, is clearly to be transcribed *Bostall*, the man in question taking his name from Boshill in Axmouth, earlier *Bostall*, *Bosthill*. Similarly the Devon surnames *Bydene*, *Shute*, *Trewen*, *Lantishar*, *Velye*, found in 1332, can all be traced to place-names of certain English origin in the county.

On pp. 238-40 a list is given of local names peculiar to the different English counties. In some cases, however, we may doubt whether the place in question gave rise to the surname. Cornhill, a London City street-name, can hardly have given rise to a surname such as Cornell. There are many real place-names Cornhill in the country. Rodney (Somerset) is not a place-name, for the village was earlier Stoke Rodney, the manorial addition being the name of an early owner.

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The statistics which are given here and there to illustrate the various name-types are interesting. It will be seen that the proportions vary greatly in the different localities. Surnames of local origin are most frequent in the north and in the southwest and are practically absent in Wales and Ireland. In the former country the genealogical type is practically the only one represented alike in modern and in medieval times. This is rather strange in view of the fact that Cornish and Breton surnames are largely drawn from local sources.

The author deals at some length with the surname Shakespeare in his endeavour to prove that the name is not, as popularly supposed, to be interpreted literally. The etymology is perhaps best left open, but one is inclined to accept the obvious meaning of names like *Hatecrist*, *Shunecrist*, found in early documents, for which Mr Ewen would seek a different interpretation.

A large number of quaint surnames found in early sources do not seem to have survived. As examples may be noted *Cockesbrayn* (1275 Sussex), *Doggetail* (1327 Worcester), *Evilchild* (1275 Cambridge), *Lickefinger* (1205 Norfolk), *Rotenherring* (1331 Yorks), *Drinkedregges* (Lancs), *Strokelady* (1377 London), *Spurnewater* (1274 Norfolk). In a few cases where the meaning of the offensive, or at least contemptuous, nickname has been forgotten, the names have survived, often in a corrupt or unrecognizable form.

The book should prove of some use to those who are interested in the subject, though the number of well-known surnames which have been omitted is disappointingly large. A short chapter dealing with all, or at least some, of the best known names in literature, history and politics would have been a welcome addition to the book and would have helped to satisfy the interests of the general reader.

J. E. GOVER.

LA DEUXIEME CAMPAGNE DE FOUILLES A RAS-SHAMRA. (Printemps, 1930). Rapport et études préliminaires. Extrait de la Revue SYRIA, 1931. By F.-A. CLAUDE SCHAEFFER, CHARLES VIROLLEAUD and FRANCOIS THUREAU-DANGIN. Paris: Paul Geuthner, 1931. Price not stated.

The excavations which opened at Minet-el-Beida and Ras Shamra in 1929 were almost at once attended with startling success. In this small but fertile territory some ten miles north of Latakia were established in the second and first millennia B.C., the principality and city of Sapuna—the Biblical 'Zephon' of Exodus, XIV, 2. Here, in comparative remoteness from the great highways which conquering armies followed, there sprang up a library and a college, where the scribes of the 13th century might learn their erudite profession. The evidences of their labours came rapidly to light in the first season's exploration, when tablets were found which revealed the existence of a Canaanite literature closely akin to the Hebrew. The present volume records the results of the ensuing year's expedition which not only confirmed the preliminary surmises of the excavator but added to the list of languages studied at this Academy (Accadian and Sumerian vocabularies had already been found) a fourth and entirely unexpected stranger, related, as M. Thureau-Dangin shows reason to believe, to the speech of the Mitanni or Khurri of northern Mesopotamia. Of the Canaanite tablets already mentioned, M. Virolleaud publishes here (with cuneiform facsimiles) a number of fragments containing an epic poem of the Phoenician divinities El, Asherat, Anat, Môt, and Alein (the last-named hitherto unknown). Side by side with these, as it were, were found a typically Egyptian shrine dedicated to Baal Sapuna (Baal-Zephon) with a basalt stela suitably inscribed with Egyptian hieroglyphs, and, close to this, a smaller

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and much ruder monument, in which the god combines the attributes of an Egyptian and a Hittite deity! The confusion of races, languages and cultures seems, in fact, to have been unusually involved in this small maritime State, and the presence of Mycenaean vase-fragments may prepare us for even more striking revelations. For unless all the evidence deceives us, Sapuna must have been very closely connected with those mysterious Aegean Keftiu whom the XVIIIth Egyptian Dynasty knew so well. M. Schaeffer does, indeed, report a lower stratum of occupation, the vases of which, as his excellent photographs testify, must belong to the latter half of the Middle Bronze Age. Between this and the 13th century library and temple there is still a gap whose history remains unknown. Ras Shamra has certainly much more to tell us. W. J. PHYTHIAN-ADAMS.

MIDDLESEX IN BRITISH, ROMAN AND SAXON TIMES. By SIR MONTAGU SHARPE, K.C. *Methuen, 1932. pp. XIX, 240, with 12 illus., 9 maps and plans. 15s.*

It is to be assumed that publishers, when they write commendatory puffs of their own productions, do not wish to be taken too seriously by the serious. Otherwise it is a little astonishing that Messrs Methuen, who are responsible for quite a number of good archaeological books, have seen fit to describe this volume as a 'valuable work which appeals to the archaeologist, the historian and the general reader'. Now, although the archaeologist and the historian are capable of looking after themselves, the general reader is only too willing to put his trust in the expert, and he should therefore be treated with sympathy and with consideration. He ought to be put on his guard against mere theory cleverly or convincingly presented as indisputable truth. He ought not to be told, for example, that 'the earliest inhabitants [of Middlesex] of whom anything is known were the Neolithic'. He ought to understand that a distinction is usually made between the cultures of the Neolithic and Palaeolithic periods, and he should realize that the term 'pre-Celtic' as applied to the peoples and industries of the Stone Age has little more meaning than pre-Cockney.

The best passages in this book are those which are frankly imaginary. He would be a peevish reader who was not thrilled by the distinguished person from Verulamium, 'of noble mien with fair moustache and long hair turning grey, now stepping out of the *essedæ* (war chariot)'. Nor can we read unmoved the words which paint so vividly the picture of Lady Helena: 'This golden-haired British princess, with lovely face and delicate complexion, is both as kind and good as she is fair, and is adored by young and old throughout the tribe. Fine of stature, she sits her horse with inborn grace—' and so forth. Whatever may be the archaeological value of such passages, they certainly do show us how to brighten the style of works that are often so dull and heavy and so doggedly devoted to mere fact.

But we are not prepared to follow Sir Montagu when he talks about Caesar's passage of the Thames, or the Roman land-system, or the warfare of the Saxon invaders. Caesar is assumed to have crossed the river at Brentford, and the most convincing proof of this is a granite monument unveiled by the late Duke of Northumberland in 1909. As for the muddy stakes which are drawn out of the river and used as props for ingenious theory, it is quite obvious that no one can determine their date or purpose; many of them are almost certainly the remains of eighteenth-century fishing-weirs. Nor does the argument in favour of a neat rectangular division of Middlesex by Roman surveyors rest upon evidence of a more substantial kind. Ingenuity is not enough; there must be proof, and the proof is lacking. There is no evidence to show that Middlesex churches are

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built on the sites of Romano-British chapels; no evidence to show that tumuli were used as surveyor's marks or boundaries by the Romans; no evidence of 'the general continuance through the Saxon era of the paginal divisions'. There is, on the contrary, plenty of evidence (though not in this book) to show that the Roman occupation of Middlesex was extremely scattered, never far from the vicinity of the main highways or the rivers, and in no case (except at Brockley Hill) of any considerable local extent. It could not well have been otherwise, for the greater part of Romano-British Middlesex was uninhabitable. Sir Montagu is not the first man to be fascinated by the delightful pastime of ruling lines on Ordnance maps, and with no small ingenuity making up a pattern out of churches, trees, bushes, mounds, occasional stones or simple tradition.

The book is well bound and has an excellent frontispiece.

C.E.V.

THE CIVILIZATIONS OF THE EAST: THE NEAR AND MIDDLE EAST.

By RENÉ GROSSET. *Hamish Hamilton, 1931. pp. 404, and 313 illus. 25s.*

The first volume of M. Grousset, Conservator of the Guimet Museum, covers the civilization of Egypt, Babylonia, Assyria, ancient Persia and of the Musulmans both in Mesopotamia and Persia. An introduction describes the primitive civilizations (neolithic and early metal ages) in Egypt and nearer Asia. In this chapter, which takes into account the latest discoveries in these various regions, the author provides a summary which could not have been given at all a few years ago. There is even a hint of the connexions which may have existed between these remote cultures and primitive China. But while M. Grousset has attempted to indicate the main outlines of the civilization of each region and period, it is the history of art which has pride of place in his narrative. Numerous illustrations representing the chief monuments of each period, whether still *in situ* or scattered in museums, assist the reader to follow the artistic development described in the text.

A journey of the author's into Persia has enabled him to evaluate the art of the Safawid epoch, and he gives illustrations of several monuments in Ispahan belonging to this period; nor has he overlooked miniatures in manuscripts.

The book is the first of a series designed to cover the Far East as well; it is clear and well-arranged, and will be of great use to travellers, and forms an excellent introductory handbook for those who wish to study the art of the East. G. CONTENAU.

THE PRISMS OF ESARHADDON AND ASHURBANIPAL, FOUND AT NINEVEH, 1927-8. By R. CAMPBELL THOMPSON. *The British Museum, 1931. pp. 36 and 18 plates. 10s.*

The excavation of Nineveh, which is the source of most of the Assyrian collections at the British Museum, has been resumed by Dr Campbell Thompson. Amongst the results of the campaign of 1927-8—historically one of the most important—is the discovery of a six-faced prism some distance from Nineveh at the place where Sennacherib had built a palace for his son. The prism, which is dated 673-2 B.C., recounts the history of Esarhaddon. This document is important both because it is more complete than any of those which we have hitherto obtained and because it alludes to the assassination of Sennacherib by his sons. The vagueness of the text and its obscurity are evidence of the embarrassment of the scribe who had to gloss over an incident well known to his contemporaries living at the court of the king. In addition to the transcription and translation of the text Dr Campbell Thompson gives us a reproduction of it in impeccable

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script. Another prism, summarizing the list of Assurbanipal's buildings, concludes the volume ; it was found under the southeast gate of the Temple of Nabu at Nineveh. These two documents will be welcomed by historians as well as by Assyriologists.

G. CONTENAU.

PHOTOGRAPHS OF CASTS OF PERSIAN SCULPTURES OF THE ACHAEMENID PERIOD, MOSTLY FROM PERSEPOLIS ; 12 plates. *The British Museum*, 1932. Cased copy, 7s ; set of plates loose, 6s ; separate plates, 6d each.

The ruins of Persepolis form the most important architectural and sculptural group of the Achaemenid period. At Susa the remains of this period are confined to a single phase, the reign of Artaxerxes Mnemon (404-359 B.C.) ; whereas at Persepolis the developments of this style can be studied, the monuments ranging from the reign of Darius to Artaxerxes Ochus (522 to 338 B.C.). Persepolis lies in the south of Persia, not far from Shiraz ; and by reason of its remoteness the ruins have survived down to the present day. This inaccessibility however was double-edged ; while it preserved the ruins from destruction it also kept them hidden from the eyes of the world, and few travellers went there. Several expeditions went to obtain casts of the principal monuments, notably those of Lottin de Laval in 1884 and Cecil Harcourt Smith in 1887. A set of these casts was exhibited last year at the British Museum, for in default of the inaccessible originals they became documents of the first order of importance ; and the British Museum authorities have now published reproductions of some. The first two plates represent the king (probably Xerxes) on his throne, attended by small figures symbolizing the different peoples in the empire. Several plates figure vassals offering presents to the king. Here and there the artist, by adding a tree, suggests the plantations with which the northern part of the terrace of Persepolis was adorned ; the vassals pass through them to approach the king. This scene is carved on the wall of a staircase built by Artaxerxes III. Other panels have symbolic scenes, such as a lion attacking a bull, a motif dear to Mesopotamian artists right back to the dawn of history. Others again represent the king killing a griffin, symbolizing the struggle of good and evil. One plate has been taken from the monuments of Pasargades ; it represents, not, as was once thought, Cyrus, but a winged spirit derived from the Assyrian conception of supernatural beings.

G. CONTENAU.

MESOPOTAMIAN ORIGINS ; the basis population of the Near East. By EPHRAIM A. SPEISER. Philadelphia : University of Pennsylvania Press ; [London : Milford], 1930. pp. 198. 12s 6d.

The first excavations in Mesopotamia (at Khorsabad and Nineveh) revealed the civilization of Assyria. A little later the discoveries of de Sarzec at Tello made us acquainted with the civilization of Sumer. The original conception of a Mesopotamian civilization founded by Semitic Assyrians was abandoned and replaced by the conception of a civilization originated by non-Semitic Sumerians and adopted at an early date by Semites. The discoveries of recent years have set the problem a stage further back and have obliged us to recognize the existence, before the Sumerian period and throughout Western Asia, of a period characterized by the use of painted pottery—which vanished completely when the Sumerians came upon the scene and which cannot therefore be attributed to them. Simultaneously there was recognized over the same region a

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conglomeration of peoples whose languages had sufficient points of affinity for them to be grouped together—languages, however, which are represented only by the persistence of their proper names. These peoples, first studied in Asia Minor, have been called Asianic. Their range, traced in Mesopotamia as far as the Zagros range and Iran, has caused Professor Marr to give them the name 'Japhetic', which would thus be applied to those peoples of Nearer Asia who were neither Semites nor Indo-Europeans (at any rate upon their first emergence).

Now Professor Speiser has taken up the problem again. After a general introductory chapter he deals successively, from the archaeological and linguistic standpoints, with the different peoples which can be grouped together under this heading; with the connexions between Sumer and Elam (the name given to ancient Persia); between the Lullu and the Gutti inhabiting the foothills of the Zagros range; and between the Kassites and the Hurri. Many of these peoples have long been known. The connecting link is established by the knowledge we have recently obtained about the Hurri, who lived in Northern Mesopotamia and enable us to connect the peoples of Asia Minor with those of Zagros and Iran.

In the course of these novel researches the author has come to certain conclusions of a detailed character whose validity will probably not be maintained in their entirety in the course of the future; but the foundations appear to me to be solid; they consist in the presence of an indigenous population with marked affinities, spread over Asia Minor and the Iran plateau before the arrival of the Sumerians. We cannot commend too strongly this book of Professor Speiser's.

G. CONTENAU.

THE LAND OF TROY AND TARSUS. By J. E. WETHERALL. *Religious Tract Society.* pp. 264, 16 plates, 7s 6d.

A vast and almost bewildering number of subjects is treated in Mr Wetherall's book, as he begins with the Hittites, 1500 B.C., works through Greek and Roman history to New Testament times, then deals with the medieval period and the Crusaders, and finally brings it up to date by chapters on 'The Coming of the Turks' and 'Angora', concluding with the declaration of the Turkish republic in 1923, giving two portraits of Mustapha Kemal Pasha.

With such a wide range as this it is impossible that the book should entirely lack interest, but the methods adopted are unfortunate and apt to lead to confusion. A complete disregard of sources and evidence, and an elementary treatment of the subject matter, such as is only justifiable in a book intended for readers who have no knowledge of the subject, is coupled with the assumption of a thorough grounding in ancient history and the consequent omission of important facts—which leads to a very distorted view.

For instance, we have only a most abrupt introduction to Julius Caesar:—'After Julius Caesar had completed nearly a year of inglorious life in Egypt, in petty battles and dalliance with Cleopatra, he set sail for Syria'—no mention of his previous engagements or his campaigns in Gaul.

The method is at fault here, in that it gives chief prominence to places, and regards events merely as important when they occur in those places. This inevitably detracts from their importance, as so often the most interesting episodes take place elsewhere. Thus we hear of Cyrus' march from Sardis to the Syrian Gates, and again of the return of the Ten Thousand from Trapezus to Byzantium, but the intervening events and the battle of Cunaxa are slurred over, and we are given the cold comfort that 'they are

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all recorded fully and vividly in the pages of Xenophon'. Other chapters, such as 28: 'The Cilician Gates', consist of a string of events in chronological order with no logical connexions save that of their common locality, which also tends to become tedious.

Throughout, the book is characterized by a sweeping lack of discrimination and a total disregard of the difference between fact and fable. Thus Mr Wetherall does not scruple to tell us that Solon had an interview with Croesus, a fact which even Plutarch admits 'some think not agreeable with chronology'. We are also treated to a complete biography of Homer; of how 'when still a lad' he was taught by Phemius, then travelled abroad, and established a school in his old age at Chios, where he 'acquired a considerable fortune, married, and had two daughters'. We also read with interest that the Seven Wise Men were elected in 652 B.C., and that the Great Mother of the Gods was called 'Ma'.

On the whole the production is good, and we have only detected two misprints (pages 72 and 149); but the selection of plates has been rather unfortunate; the map at the beginning is far too cramped and confused to be of any value, while the portraits are all badly reproduced and some, notably those of Caesar and Cleopatra, seem to be the ugliest available.

However there are undeniably some good stories in the book, told in an easy, vivid style, while some happy phrases such as 'Eastward Ho' have been coined to form effective chapter-headings. In short, if not taken too literally, it proves pleasant light reading.

ELEANOR DOBSON.

THE THEORY OF SPEECH AND LANGUAGE. By ALAN H. GARDINER. *Oxford: Clarendon Press, 1932. pp. x, 332. 10s 6d.*

Dr Gardiner's book, which as he tells us, has been pieced together gradually in his spare moments during the last four years, is a serious attempt to arrive at the philosophic principles governing one of the most characteristic of human activities.

The book appears at a time when a critical interest in language study is developing apace. For this there are several obvious reasons. Of primary importance is the tremendous increase in the number of new literary languages. The opening up of new territories, particularly in Africa (one consequence of the triumphant development of the motor-car) has brought to the fore the problem of educating hitherto unlettered primitive tribes. African education is very rightly based on first teaching the child, whenever possible, through the medium of its mother-tongue. Scores of African languages can now boast an alphabet and even the beginnings of a printed literature. Again the Soviet Union, standing as it does for the principle of a voluntary alliance of free peoples, presupposes the provision of equal opportunity for all to receive an adequate education, irrespective of nationality. Here too a considerable number of languages have been reduced to writing for the first time. Indeed no less than 72 out of the 140 languages spoken in the Union are reported to have a printed periodical literature.

Another factor which has been stimulating the study of language theory is what may be termed the 'rationalization-motive'. The stress of competition in the modern world operates continuously to suggest the advisability, in any and every way, of saving superfluous energy. In such circumstances the schoolmaster, faced with heavy demands for allocation of time to new subjects, like others, succumbs to the rationalization urge and begins to cast longing eyes on periods sacred from time immemorial to the study of grammar. His sub-conscious self doubtless abets him by suggesting that the removal of this item from the curriculum would receive the hearty support of his pupils.

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'It is in periods of transition like the present' writes Dr Gardiner, 'that the never-ending struggle between authority on the one hand and the spirit of reform on the other, becomes most insistent and vocal'. It is but natural that the conflicts 'familiar in the contemporary world of politics' should repeat themselves 'even in so apparently tranquil a backwater as that of grammatical lore'. We do not, for reasons which will be stated, believe that the work under review has once and for all established the science of linguistics upon an unshakable pedestal, but it is no over-statement of its merits to suggest that it is a book which should be most carefully read by all serious students. Its pages, written in a style as subtle as it is clear, are essentially thought-provoking, and many are the instances where a new and vivid light is thrown upon ancient conventions.

The analysis of such conventional terms as 'speech', 'language', 'sentence', 'clause', 'noun' reveal depths of significance which are certainly overlooked by ordinary people, and have rarely, if ever, been apprehended so precisely even by professional grammarians. For instance, Dr Gardiner makes a valuable contribution to linguistics in advancing his conception of the act of speech as being in the nature of a quadrilateral affair comprising the four factors: the speaker, the listener, the words, and the things (spoken of). The actions and reactions of the several factors on each other are most carefully thought out and presented in chapter II, suggestive picture-sequences and diagrams being utilized for the purpose.

It is when the author reaches his third chapter and deals with the historical significance of language (and therefore by implication, of grammar) that he comes nearest to a satisfactory evaluation of the place of linguistics in philosophy. We could wish that he had expanded sections 34-39 to form the main part of the book. For when we would attempt to understand why it really is that we bother ourselves with the study of grammar and linguistics, we are forced back, sooner or later, to a consideration of the functions of speech and language as they manifest themselves today, and even then cannot get far until we begin to study their history. That approach takes us, as Dr Gardiner has realized, out of the realms not only of linguistics, but even of sociology, right into biology.

Just as soon as, in the evolutionary trend, organisms not permanently joined together came into existence, the need arose for them to establish temporary contacts; at first of course, only for the purpose of procreation. As life became more complex species with a definite degree of social life established themselves. Amongst terrestrial animals, including birds, we find the utilization of the specialized organs of alimentation for the purpose of sound-emission widely developed, and, as a corollary, the evolution of the organ of hearing. The extent to which the social behaviour of various species is dependent upon inter-communication by sound undoubtedly varies. It is interesting to note in this connexion that recent studies of the chimpanzee have established the fact that it has at its command at least nine different sound-series, each with a special significance.

Man, so far as is known, has gone further than any other animal in his use of sound as a means of inter-communication, and is perhaps alone in having evolved *variable* sound-patterns which can properly be called 'language'. But the most significant fact to remember is that his use of all this has varied at different times and in different circumstances, and in all probability will continue to do so in the future.

Dr Gardiner's contention that language arose through concentration on speech as the most serviceable means of inter-communication between human beings will be generally accepted. Human vocabularies have evolved through this process of

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mouth-to-ear communication. But, at varying dates after Man had acquired the faculty of speech, with its armoury of sounds (words) shared between individual and individual, he has been able to transfer his word-technique (or language) to other vehicles than speech. Perhaps the greatest achievement amongst these transferences was when he invented the art of writing, and thus was enabled to inter-communicate by a hand-to-eye process which overcame limitations of time and space. And he did not stop at that. For the assistance of such of his fellows as were afflicted with the calamity of blindness, he extended the use of language to a hand-to-hand business (braille). After a long period during which the hand-to-eye means of communication has been steadily advancing in importance, we are now confronted with fresh possibilities for the development of the earlier mouth-to-ear technique through the advent of telephones, radio, and, above all, of the dictaphone.

Nor has Man limited his employment of language to establishing communication between himself and others of his kind. He has—not very successfully, it is true—tried it on his domesticated animals, and furthermore, whenever his fancy has created for him unseen creatures of another world, sprites and fairies, gods and demons, he has used language, in one of the ways mentioned, to attempt to get into touch with these also.

Finally he makes a further serious use of language in communicating, so to say, with himself, as every diligent note-taking student must admit, let alone those who realize that both thoughts and dreams are largely clothed in language.

Historically, grammar (and this is universally recognized) came into being as a consequence of the discovery of the art of writing. Like all human techniques writing must be taught—and learned. Now it seems to have been a universal law of human development that the possessors of technique, the more so if the technique was an intricate one, expected some recompense for their trouble in imparting it to others. The pedagogic function became in time a valuable means of obtaining a livelihood.

That specialist among pedagogues, the grammarian, was not slow to realize the advantage to himself of making his craft as difficult as he could. His influence is discernible on the development of all written languages, but outstandingly so on some of the Eastern ones such as Arabic and Chinese, where his hold has been so great that an almost unbridgeable gap has been created between the written and the spoken word.

It is at this point that revolt begins to mature. Human beings need language as a means of communication. If the pedant insists on making the thing too difficult his whole *raison d'être* is gone. A generation arises that will have none of it. *Arx longa vita brevis*. We have no time for your lengthy exercises. Language is for man, not man for language. Enough! We shall write as we speak, and speak as we think.

The author's quotation on p. 104 from Samuel Butler is not the least entertaining part of the book, but he has surely let pass an occasion to chastise that subtle philosopher's logic by endorsing the argument that 'if a snuff-box can say "Send me a quart of beer" so efficiently that the beer is sent, it is impossible to say that it is not a *bona-fide* sentence!' Is a net, then, a *bona-fide* fishing-rod, because it can serve, like the rod, in the process of getting a Tay salmon into the mayonnaise? We think it would be a risky line of defence to argue thus in the Sheriff's Court at Perth.

N. B. HUNTER.

EVERYDAY THINGS IN ARCHAIC GREECE. By MARJORIE and C. H. B. QUENNEL. Batsford, 1931. pp. 142 and index, illustrations and maps. 7s 6d.

Again Mr and Mrs Quennell (and Messrs. Batsford) have given us a book which it is a pleasure to handle and to look at, but again we are left wishing that they would

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confine themselves to the purpose set forth in the title, a consideration of *things* and illustrations of them. The historical introduction is confusing, and a summary of the whole text of Herodotus does not make it clearer. The style of writing is often careless, as page 33 'different to', page 12 'gymnic' (horrible word), and it seems peculiar in a book for children to say of the marital concerns of the Gods on Olympus that 'all these relationships were regularized by Hesiod', while a digression on the inefficiency of modern teachers in preparing boys and girls for the School Certificate examination in mathematics is superfluous in a description of the Abacus.

It is difficult to feel sure for what aged child the book is intended. On the one hand we are told that 'the Pythoness was the medium between the God and the priests' and that 'the modern man has been confined in a two-dimensional world', neither very comprehensible statements for the young; while in other places the narrative is extremely simple.

But in spite of the colloquial and discursive style of much of the letterpress, we are sure that the delightful pictures and lucid explanations of such matters as smelting, shipbuilding, or the possible origin of the lyre from the shell of a tortoise, to take only a few examples, will make the Ancient World more real to many readers than it ever was before. And that is, after all, no small achievement. When so much is good it seems a pity that the rest should not be better. All school libraries will need this book for its illustrations.

DINA PORTWAY DOBSON.

ANCIENT CORINTH, with a topographical sketch of the Corinthia. Part 1. From the earliest times to 404 B.C. By J. G. O'NEILL, PH.D. *Johns Hopkins University Studies in Archaeology*. Number 8. Edited by DAVID M. ROBINSON. Oxford University Press. pp. 270, 8 illustrations, map and plan. 22s 6d.

Professor O'Neill has set out to write a book in which 'the History of Greece, too often treated as if it were merely the history of Athens and Sparta would be surveyed with Corinth as the central figure'. To this admirably chosen task he has brought great learning and industry, and his work will be most valuable to scholars interested in the city on the isthmus. Unfortunately the book is rather spoiled for the general historical reader by the large number of quotations and references in the text to numerous authorities. We wish that the author would give us more of his own considered opinion and less of the raw ingredients of his dish. The topographical study of the district is detailed, and makes clear the writer's familiarity with the site, but the map is not attractive.

The subjects dealt with include prehistoric Corinth, early cults and myths, the Tyranny and succeeding constitutions, the Colonial System, and the Persian and Peloponnesian wars. The selected bibliography covers several pages. This volume should certainly find a place on the shelves of classical libraries. DINA PORTWAY DOBSON.

THE ROMAN VILLA AT CORINTH. Prepared by the American School of Classical Studies at Athens. Part v, by Professor THEODORE LESLIE SHEAR. 1930. Harvard University Press; Otto Harrassowitz, Berlin. Large portfolio. \$10.

Corinth seems to be well to the fore as a subject of archaeological study at the present time, largely owing to the work and publications of the American School of Classical Studies at Athens. Amongst these, none can compete for magnificence with *The Roman Villa*, by Professor Shear. This work is published in portfolio form,

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measuring 32 inches by 25, and its chief feature is a series of coloured plates giving facsimile reproductions of the fine pavements of the villa, made from paintings from the brush of the late Nora Jenkins Shear.

It is gathered that the villa was built and the pavements laid down in the Hellenistic period, so that the mosaics, representing a magnificent head of Dionysus, and several mythological and rustic scenes, throw some light on Greek painting. At a later date the floors were apparently used for a second Roman building, with rooms of such irregular shapes that the pavements had to be mutilated to fit them. The material for the mosaic was limestone, terra-cotta and glass, and the effect certainly is, both in the case of the figures and the geometrical patterns, above the usual Roman standard.

This publication includes an account of the building and a coloured reconstruction of the probable appearance of the façade of the house, and also ground plans, from the pencils of R. Stillwell and W. V. Cash. The undertaking was financed by Mr and Mrs Pierpont Morgan and Mr J. Patten, and we are left wishing that some of our English villa pavements, in many cases doomed to destruction, could be so splendidly commemorated.

DINA PORTWAY DOBSON.

BULLETIN OF THE AMERICAN SCHOOL OF PREHISTORIC RESEARCH
in affiliation with the Archaeological Institute of America. *Edited by G. G. MacCurdy, Director.* Nos. 6-8, 1930-2.

We have come to expect a high standard from the reports issued by the American School of Prehistoric Research under the direction of Grant MacCurdy, and the three numbers here reviewed form no exception.

Miss Garrod, in her paper 'The Palaeolithic of South Kurdistan: excavations in the caves of Zarzi and Hazar Merd' (no. 6), describes the results of a joint expedition sent out by the American School of Prehistoric Research and the Percy Sladen Memorial Fund, which was the first regular archaeological expedition to enter the Sulaimani district. At Zarzi the archaeological deposit rested on a terrace at the mouth of the cave. The implements were yielded by one layer from $\frac{1}{2}$ to $1\frac{1}{2}$ metres thick showing no natural subdivisions. Jaspers, flints, and cherts were the commonest materials used. The industry seems to belong to the Grimaldi facies of the Upper Aurignacian, being characterized by angle-gravers, Gravette points, and the single-shouldered point. In the upper levels a slight development is indicated by the appearance of microliths. Miss Garrod suggests that in time the industry at Zarzi should probably be placed at the end of the Upper Palaeolithic, giving us yet another example of an evolved Upper Aurignacian taking the place of the rather local Magdalenian.

At Hazar Merd the archaeological deposit was located inside the cave and not on a terrace as at Zarzi. The main interest concentrates on the rich Mousterian found in a layer from .5 to 3.9 metres thick, and sealed in by another from 1-2 metres thick containing objects dating from the Bronze Age to the present day. At the junction of these two deposits there occurred a thin wisp of Upper Palaeolithic, not more than from 1-2 cms. thick, but linked to the Zarzi industry by a typical single-shouldered point. The Mousterian of Hazar Merd agrees with that of Palestine in showing the following differences from the European:—(a) presence of gravers, (b) high proportion of narrow points and blades, (c) use of the flat retouch commonly. As Miss Garrod rightly says this can only be interpreted as indicating contact with Upper Palaeolithic culture; this is just what we are now recognizing in Africa. The incomplete and unsatisfactory

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faunal remains are dealt with by Miss D. M. A. Bate, who does however venture on other grounds to postulate a lower temperature for the local Mousterian. On the face of it the fact that Upper Palaeolithic man was able to live out on the terrace at Zarzi, while Mousterian man was compelled at Hazar Merd to seek shelter inside the cave, would certainly point to this conclusion.

Another paper by Miss Garrod describes the first two seasons' excavations in the caves of the Wady al-Mughara (no. 7), at the foot of the western slope of Mount Carmel. The second chamber of the cave known as Mugharet el-Wad contained the most complete sequence of archaeological deposits so far found in Palestine :—

- A. Bronze Age to recent.
- B. Mesolithic.
- C. Upper Palaeolithic of Capsian affinities.
- D. Middle Aurignacian.
- E. Lower Middle Aurignacian.
- F. Layer of erosion, containing both Aurignacian and Mousterian forms.
- G. Mousterian. This was found only in one alcove where the floor went lower.

The Mousterian had already been found in Palestine, but the discovery of the Middle Aurignacian outside Europe is quite new, and provides yet another instance of how modern discovery in Africa and the Near East is tending to draw attention to the essentially parochial character of what passes for prehistory *par excellence* in Western Europe. The industry from layer 'c' is at the moment without exact parallels though it has Capsian affinities. The Mesolithic industry, which was also found on the terrace outside the cave, includes numerous crescentic or lunate microliths, over 300 microburins, sickle-blades with corn-lustre, grooved hafts, bone points and pins, harpoons with a single row of barbs, bone pendants and beads, and two pieces of naturalistic art in the round. While the industry quite definitely shows a predominantly Mesolithic tradition, it also seems to show influences from more advanced cultures. The absence of pottery is not in itself a conclusive argument for regarding the industry as Mesolithic in age; it is conceivable that tribes with Mesolithic traditions and way of life might well have persisted in certain areas borrowing from their more advanced neighbours on a strictly selective basis, accepting in this case the composite sickle idea—not necessarily for cultivated grasses or cereals—but rejecting the pottery. Such selective borrowing is a commonplace of anthropology. In fact we should hesitate to regard the industry from layer B of the Mugharet el-Wad as of Mesolithic age, though beyond a doubt the tradition is predominantly Mesolithic. The same industry was also discovered resting immediately upon the outside of the cave, but more work was done upon this in the succeeding season and we shall discuss it when we pass on to the next Bulletin.

Mr G. G. MacCurdy describes (no. 7) the result of seven seasons' work done by the American School in the Abri. The main deposits were of Mousterian age. Of special interest as rarities are seven rock-crystal implements, some of them exceedingly well made. MacCurdy justly remarks that the ratio of points to scrapers is far smaller in the European than in the Palestinian Mousterian. The Aurignacian was represented only poorly and locally belonging to a late phase of the culture.

In a third paper (no. 8) on the excavations in the Wady al-Mughara in 1931, Miss Garrod tells us more of the Mesolithic deposit from the terrace of the Mugharet el-Wad. She is able to sub-divide the deposit into an upper and a lower, the former of which corresponds to the Shukba Mesolithic industry, and the latter to that in the second

ANTIQUITY

chamber of the cave itself as described in the previous bulletin. Sealed in by both was a remarkable platform of artificially prepared rock, the surface of which showed the marks of some kind of pick. In the middle of this platform was a rock-cut basin of v-shaped section some 30 cms. deep, while smaller basins were found outside the platform. Another curious discovery was that of a kind of crazy pavement of limestone slabs. Another feature of the work was the discovery of no less than 17 well-defined burials, mostly flexed and lying on one side, in addition to fragmentary indications of others. Three were of especial interest, one having a cap of bone beads or pendants, another with one of *dentalia*, and a third with a circlet of seven rows of *dentalia* still in place around the head. These burials occurred in both parts of the deposit. Miss Garrod has given the name Natufian to the culture after its first place of discovery, Shukba in the Wady en-Natuf.

Another cave in the Wady al-Mughara, namely Mugharet-el-Tabun, proved to contain a Mousterian industry associated, for the first time, with an abundant fauna. While the most northerly cave of the Wady, the Mugharet es-Sukhul excavated and reported on by T. D. McCown yielded in addition to a Mousterian industry the skeleton of a Neanderthal child in a remarkably good state of preservation.

J. G. D. CLARK.

THE EPHEMERIDES OF ALEXANDER'S EXPEDITION. By C. A. ROBINSON, JR. *Providence: Brown University, 1932. pp. 81, 1 plate and map. 3 dollars.*

This useful tabulation of the agreements and disagreements of the various authorities for the Expedition of Alexander to India are compiled to prove that our extant accounts were based on the daily Journals which are known to have been kept by two officers, Eumenes and Diodotus, while the expedition was in progress. In the course of the tabulation the important fact emerges that the extant authors seem to have been unable to use these Journals for a long period which corresponds to the journey from Bactra to the Hydaspes (including the northward push up to Chojend). The writer concludes that the Journals for this section had been lost. The actual occasion of the loss seems to have been when the tent of Eumenes was burned. From the Hydaspes to the final return, on the other hand, the Journals were accessible. This and other conclusions which depend upon it are important. The author of this slim volume has done a useful piece of work and helped to illuminate the numerous problems concerned with this greatest of all military expeditions.

S. CASSON.

THE SEARCH FOR MAN'S ANCESTORS. By Prof. G. ELLIOT-SMITH. No. 16 in the *Forum Series*. London: Watts and Co., 1931. pp. 56. Paper covers 7d, cloth 1s.

The oncoming generation discards Adam and Eve soon after it has bidden farewell to Father Christmas; and it demands, sooner or later, to be told what is actually known of the true origins of Man.

The fascinating story of those origins is admittedly, as yet, only fragmentary, but, such as it is, it is ably summarized in these pages by a high authority whose practical work is as well-known as his erudition.

No one who aims at building up for himself a synthetic philosophy in keeping with the needs of today, can afford to overlook *The Search for Man's Ancestors*; the more so, since it performs a double service by giving us at once a handy, reliable book of reference and an excellent general survey.

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QADESH: Mission Archéologique à Tell Nebi Mend, 1921-1922. By MAURICE PÉZARD. Paris: Librairie Orientaliste Paul Geuthner, 1931. pp. vii, 87, 3 plans and 46 plates, 200 francs.

The exploration of the important Hittite city of Kadesh, undertaken by M. Pézard in 1921 and the following year, was abruptly terminated by the excavator's untimely death in 1923. An 'interim' report had, however, already appeared from his pen in *Syria* (vol. III, 1922) and this, together with his unpublished manuscript notes on the campaign of 1922, constitutes the text of the present volume. A number of new photographs have also been added and there is a careful documentation of the material discoveries. Unfortunately the excavator had not yet arrived at that stage in his investigations when he could feel himself the master of a confused and baffling problem. The unravelling of the history of this great site still awaits the hand of an experienced archaeologist, and the preliminary soundings which were all that M. Pézard could accomplish, will then, without doubt, prove of considerable value. W. J. PHYTHIAN-ADAMS.

LA SYRIE. Antique et Médiévale illustrée. By R. DUSSAUD, P. DESCHAMPS, and H. SEYRIG. Paris: Librairie Orientaliste Paul Geuthner, 1931. pp. 22 and 160 phototype plates. 200 francs.

This is, in the truest sense, a superb production, more than worthy of taking its place as the seventeenth volume issued by the *Service des Antiquités et des Beaux Arts* of the French Mandatory Government in Syria and the Lebanon. The illustrations, which are magnificent specimens of photography, are introduced by M. René Dussaud, who focuses most felicitously into twenty pages the vast panorama of Syrian history. In addition to this, each plate has a page of explanation to itself and there is a useful index at the end. Every period receives adequate treatment from 2000 B.C. to the days of the Turkish domination. Of the art treasures illustrated, those of ancient Byblos are of special beauty, while the views of Palmyra and Baalbec are equally striking in their own field. There is a fine series of photographs of Crac des Chevaliers (Qal'at el Hosn) and here as elsewhere in the volume the aeroplane has played an indispensable part. Such a production as this will, we hope, stimulate to rivalry our own Department of Antiquities in Palestine. We have not there, it is true, the extraordinary wealth and variety which is afforded by the much larger territory of Northern Syria, yet it would not be difficult to fill a volume of this size with a series not much inferior in artistic and spectacular interest. W. J. PHYTHIAN-ADAMS.

ΗΡΟΙΣΤΟΡΙΚΗ ΕΛΕΥΣΙΣ ὑπὸ Π. Ε. ΜΥΛΩΝΑ. Published by the Archaeological Section of the Ministry of Education, Athens, 1932. pp. 183 and 128 figs. Price not stated.

Dr Mylonas has in this elaborate and well-illustrated paper published all the information about the prehistoric site which he has recently excavated at Eleusis. The site is an important one, since there is a complete series of cultures revealed from the early Helladic period to the latest phases of the Mycenaean. He has to show a particularly fine group of Minyan vessels, while the finds in painted wares of the First Late Minoan period are rich and important. The whole series of finds testifies to the continuous occupation of this site at Eleusis through all periods.

All the phases of mainland prehistory are here illustrated and useful comparisons can now be made between Eleusis and sites in the Peloponnese, where a similar sequence occurs.

The importance of this particular site is that it demonstrates the sort of life lived on the mainland before and after the advent of Cretan influences. There is no question

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that, even after the arrival of Cretan trade and exploitation, these small villages lived in relative poverty and squalor. A bronze dagger and a stone lamp of typical Mycenaean make are the only objects which the inhabitants must have considered as things of value and wealth. Otherwise the village was a simple settlement of mainlanders in whose life the might of Tiryns and Mycenae counted for little.

The author holds unusual views on the origin of Minyan wares and doubts the views of those who derive some of the Minyan shapes from metallic prototypes in silver.

The site was still occupied in the 'Achaean' period as is testified by some fine examples of vessels generally accepted as of this phase. Eleusis will, in fact, now take its place as a good type-site where the whole sequence of cultures can be studied. The author is to be congratulated on a careful and well-documented piece of work.

S. CASSON.

THE MUSEUM OF FAR EASTERN ANTIQUITIES, STOCKHOLM. Bulletin no. 3. *Stockholm*, 1931. pp. 176 and 17 plates. 20s.

A question of the utmost importance to Chinese archaeology is how far the *Chou Li*, with its numerous descriptions of ritual objects, can be regarded as an authentic pre-Han work. By arguments completely convincing, but too elaborate to summarize here, Bernhard Karlgren shows that though the book contains later interpolations, the greater part of it can be definitely proved to be pre-Han and 'can be freely used for archaeological researches' (p. 59). These results are likely to be generally accepted. But the question still remains: does the *Chou Li* represent an actual state of affairs or merely one which the compilers imagined to have existed?

An attempt is now being made to classify ancient Chinese bronzes geographically as well as chronologically. An important step in this direction is made by Olov Janse in his long article 'Un groupe de bronzes anciens propre à l'Extrême-Asie méridionale'. Two short articles, Waley's 'Magical use of phallic representations; its late survival in China and Japan', and Erkes's 'Some remarks on Karlgren's "Fecundity symbols in Ancient China"', are supplementary to an article by Karlgren in the last number of the Bulletin. Hanna Rydh supplies an extremely interesting article on 'Seasonal fertility rites and the death cult in Scandinavia and China'.
ARTHUR WALEY.

ROCK-PAINTINGS AND OTHER ANTIQUITIES OF PREHISTORIC AND LATER TIMES. By Rai Sahib Manoranjan Ghosh. (Memoirs of the Archaeological Survey of India, no. 24). *Calcutta: Government of India*, 1932. pp. 125 and 28 plates. Rs. 13-6 (21s 9d).

This publication deals with prehistoric remains found near Chakradharpur, a station on the main line of the Bengal-Nagpur railway; and rock-paintings at Singanpur, Mirzapur and Hoshangabad. Singanpur is on the same railway, close to the Chhoti Nagpur border. Mirzapur is between Allahabad and Benares. Hoshangabad is the headquarters of the district of the same name in the Central Provinces.

The remains at Chakradharpur range from Palaeolithic to Iron Age. The paintings at Singanpur, representing animals and hunting-scenes, are palaeolithic in type; there are other paintings of much later date. Those at Mirzapur range from the 4th to the 10th century A.D.; those at Hoshangabad are 9th or 10th century. The paintings are not in caves but in rock-shelters. In each case stone implements were found in or near the shelters. The publication is an important one to the student of Indian art no less than to the specialist in prehistoric archaeology.

ARTHUR WALEY.



FIFE, KINROSS, CLACKMANNAN

THE ROYAL COMMISSION ON THE ANCIENT AND HISTORICAL MONUMENTS OF SCOTLAND has completed its survey of the peninsular area between the Firths of Forth and Tay containing these three counties.

The district was of outstanding historical importance from the earliest times. Among the relics of the eleven religious houses in the area are the house of the Grey Friars at Inverkeithing, the Abbey Church at Dunfermline, Culross Abbey and Inchcolm Abbey. The secular architecture of Fife with its many ancient royal burghs was also remarkable for the number and distinction of its baronial residences, many of which survive.

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By J. E. B. GOVER, A. MAWER, and F. M. STENTON

The study of the Place-Names of Northamptonshire has thrown fresh light on the relation of this county to the rest of the Danelaw, and a study of its place-names, perhaps even more of its field-names, has brought out clearly the significance of Watling Street as a boundary of the Danelaw.

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Antiquity

A Quarterly Review of Archaeology

VOL. VII No. 26

JUNE 1933

Notes

For reasons of convenience our usual comments on Recent Events are substituted for the customary Editorial Notes.



With reference to a note on the 'pebble giants' of California in our December number (ANTIQUITY, 1932, VI, 479), Mr ARTHUR WOODWARD, of the Los Angeles Museum, writes to us under a misapprehension. Since other readers may have misunderstood what we said it will be better to make this quite clear by a restatement. We had no intention of implying, as Mr Woodward thought, that the *ground-figures* were of natural origin; they are obviously the work of man. We merely suggested that other (natural) features visible on the air-photograph seemed to point to the fact that the artificial ground-figures were of no great age. But we do not in the least desire to press a view based merely upon a photograph if it is not acceptable to those familiar with the actual topography.

Mr WOODWARD says:—'As to their age, I do not know at the present time. Judging by the "desert varnish" or patina upon the smooth, water-worn, wind-whipped and sun-darkened pebbles constituting the peripheral ridges outlining the figures, I should judge that these figures had been there for many years'.

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In *The Times* of 28 January, Mr Arthur Upham Pope writes about recent discoveries in Persia and the adjoining regions. It is here, and especially in the region to the north of Persia, that the most important discoveries of the future will be made. We are particularly interested in one paragraph which we quote in full :—

' M. Alexander Marustchenko, a brilliant young Russian archaeologist, has been for several years excavating at Askabad, directly over the border of northeast Persia. Here were found nearly 100 prehistoric mounds, some clearly dating from at least the beginning of the 4th millennium B.C., and producing pottery of the Susa I type '.

Should this number of ANTIQUITY meet the eye of M. Marustchenko and his colleagues, we hope that he will communicate with the Editor, as we should like to publish some report of his results in a future number of ANTIQUITY, for the benefit of archaeologists outside the Soviet Union. (Incidentally we suggest that *The Times* map-draughtsman might learn a little political geography. On the map accompanying Mr Pope's article, both Armenia and Turkestan are marked ' Soviet Russia '. Armenia is no more Russia than Scotland is England).



A car patrol of the Egyptian Army discovered, in the Nubian desert about 40 miles northwest of Abu Simbel, two hieroglyphic inscriptions with the names of kings of the 4th and 12th dynasties. A later visit by Mr Englebach resulted in the discovery of quarries from which the ancient Egyptians obtained the stone used for their statues.

' Every variety of diorite was found, from the black-green stone of which the royal statues of the old kingdom were made, to the black speckled with white frequently used for bowls and vases. Half-dressed blocks are lying about, evidently abandoned owing to the discovery of flaws, and a ramp has been identified up which blocks were evidently rolled for loading on sleds. The whole site is more than a mile square. Eight miles further north other cairns have been discovered with inscribed stelae recording expeditions sent out to obtain some precious material, possibly amethyst, from the desert ' (*The Times*, 28 February, p. 13). We hope that vertical air-photographs will be taken of these sites.



A jar containing 40 lb. in weight of gold and silver Turkish coins, mostly gold, and therefore representing a very considerable sum of

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money, has been discovered buried in a field near Skoplje. It is believed that it was buried by a Turkish landowner during the first Balkan War. (*The Star*, London, 21 March).

We quote this find, not because it is, presumably, of any direct archaeological interest, but because it is an admirable modern parallel to the hoards of gold objects, Roman and medieval coins and jewelry which are unearthed from time to time in this country. Such hoards are used by historians as evidence of disturbed conditions. They are most numerous at periods when the raids of Picts and Scots took place and, later, during our own Civil War. The Turkish instance provides a close parallel in our own day.



There has been quite a spate of hoards recently—or is it that the more enlightened attitude of most modern States results in completer preservation? This, perhaps combined with the effects of greater publicity for archaeology, generally prevents such finds from going into the local jeweller's melting pot, the fate of the famous Battle hoard and many others.

Thus the discoverers of gold bracelets at Towednack (*ANTIQUITY* 1931, VI, 96) and of gold British coins at Chute and Westerham (*ib.* 1928, II, 90, 228-9,) all received their full reward from the State. So too did the agricultural labourer who found a magnificent collection of late medieval ornaments and coins at Kropp, in the province of Skaane, Southern Sweden. (*The Times*, 23 March, p. 13).



A correspondent writes:—'In *ANTIQUITY* for March, p. 99, Capt. T. W. M. Johnson refers to willow-herb growing on slag heaps, and the following information may therefore be of interest.

'Cannock Chase lies about 4 miles southeast of Stafford and during the war period, 1914-18, the greater part was covered with military camps. In consequence many natural features were altered—for instance, roads were made where tracks had previously existed, high ground was cut down and hollows filled up, filter beds were made for the drainage system and in general great quantities of slag were used for these purposes. Since the camps have vanished I have noticed during the summer time great masses of willow-herb in bloom on the

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sites where slag has been dumped. Each year the growth gets more dense but does not seem to spread to those parts of the Chase which were not subject to human occupation. Before the war willow-herb was unknown on the Chase'.

Mr W. F. JACKSON-KNIGHT writes :—' Mr G. D. Hornblower offers (ANTIQUITY, March 1933, p. 94f) the attractive proposal that the name of Homeric Troy, which I had connected (*ibid.* 1932, VI, 454, etc.) with the root TRO apparent in maze names, and the name of Tros, the foundation hero, also, may have referred originally, if in fact they contain connotations of "shutting", to the closing of trade routes, commanded where they crossed by the fortress also called Ilion. I add that the name Ilion is capable of a similar interpretation, by comparison with the verb εἶλω, for which Liddell and Scott give "*to roll up or pack together into close quarters . . . , κατὰ τείχεα λαὸν εἶλσαι, to roll up the host and force it back to the walls, Il. 21.295 . . . in pass. also, to go to and fro, . . . to wind, turn round. . . .*" All the most relevant meanings therefore seem available in this word ; and, since its root EA or AA is identified in ἱαγέ, ἱαγγος, ἱαγγαῖα, the etymological connexion with Ilion should not be impossible'.

There is no end to the possibilities opened up by such speculations. At least there would be no end if there were not also a blue pencil. Before using it however we are going to join in ourselves in the Trojan game, after which the present tournament must close. The last instance comes from Portugal and is quoted from FOLKLORE, December 1932, XLIII, 454 :—' Just east of Cabo de Espichel a Roman, pre-Roman and supposed Phoenician settlement, built on sand-dunes [*sic*] forming the outer shelter of the Setubal bay [in Portugal], has partly sunk into the sea. The place is called Troia, and on the highest point of the present dunes stands what may be a phallic column, ten feet high, plainly visible from the opposite shore'.

The Ancient Italian Town-House

by R. C. CARRINGTON

UNTIL a decade or two ago, our knowledge of town-houses in ancient Italy had been obtained almost entirely by digging at Pompeii, and the dwellings uncovered in that town were regarded without question as typical of ancient Roman houses in general. The houses which thus came to be accepted as the pattern, and are still represented as such in English text-books, consisted down to the 2nd century B.C. of rooms arranged round a central atrium, and later, when Hellenistic influences had become paramount in Italy, of a combination of atrium and peristyle, the latter being added in imitation of the *ἀνάλη* of a Greek house. Of late years, however, the view that these houses were typical of all Italian towns in antiquity has been challenged. The systematic excavation which is going on at Ostia, the ancient port of Rome, has revealed houses very different from those of Pompeii, comprising, not an atrium and peristyle, but many-storeyed blocks of flats, built around a central cortile, in the manner of the *casamenti* of modern Rome. As a result of these discoveries the pendulum tended to swing to the other extreme and the view gained ground that, if we wish to find a house representative of large cities in antiquity, it is to Ostia rather than to Pompeii that we must look.¹ Confirmation of this view was seen in the discovery of a house of the Ostian type, dating from the 2nd century A.D., on the slope of the Capitol in Rome.

The finds at Ostia, however, had their reaction on the course of investigation at Pompeii, and it was pointed out that in the years immediately preceding the eruption of Vesuvius which destroyed the town (A.D. 79), certain innovations were made in Pompeian domestic architecture which offer close analogies to the most typical features of the Ostian house.²

Such is the position which the course of investigation has reached at the present time. The purpose of this paper is to examine in

¹ Rostovtzeff, *Social and Economic History of Rome*, p. 507.

² A. Maiuri, 'Contributi allo Studio dell' Ultima Fase Edilizia Pompeiana', in *Atti del Primo Congresso Nazionale di Studi Romani*, 1929, pp. 161ff.

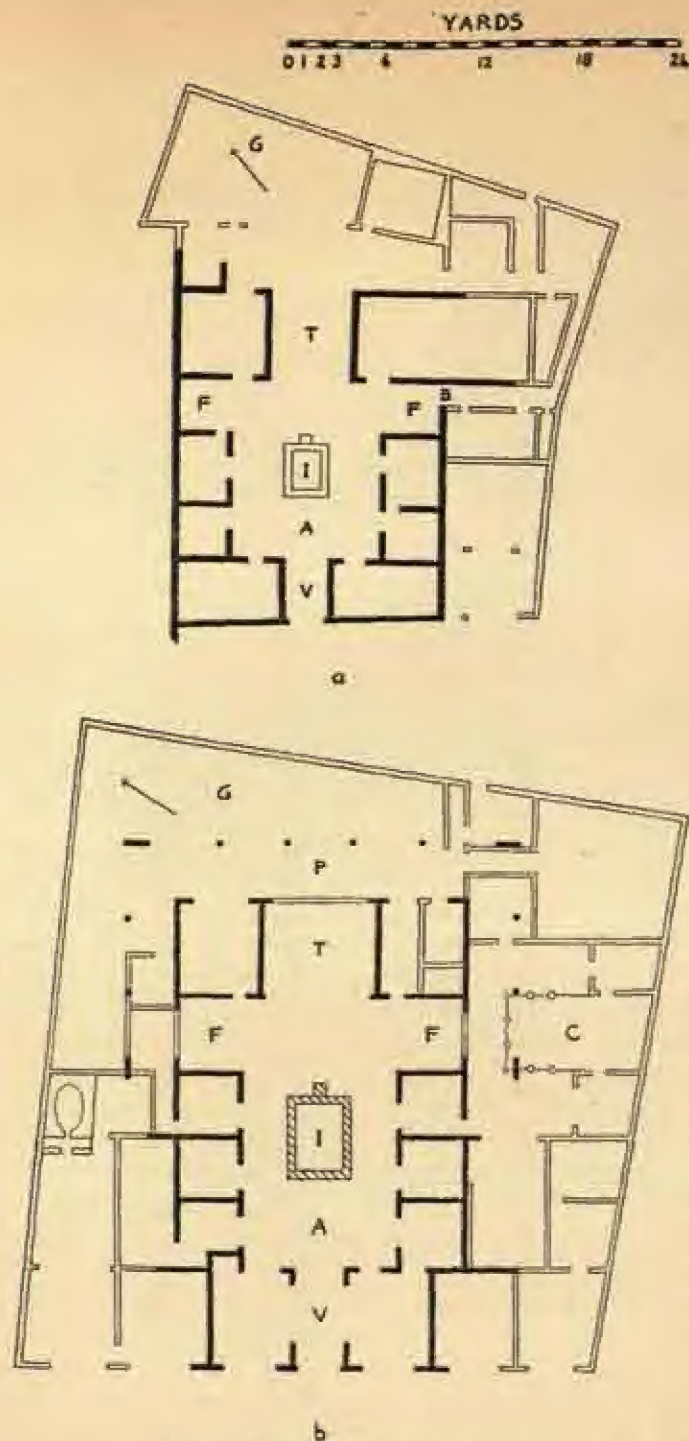
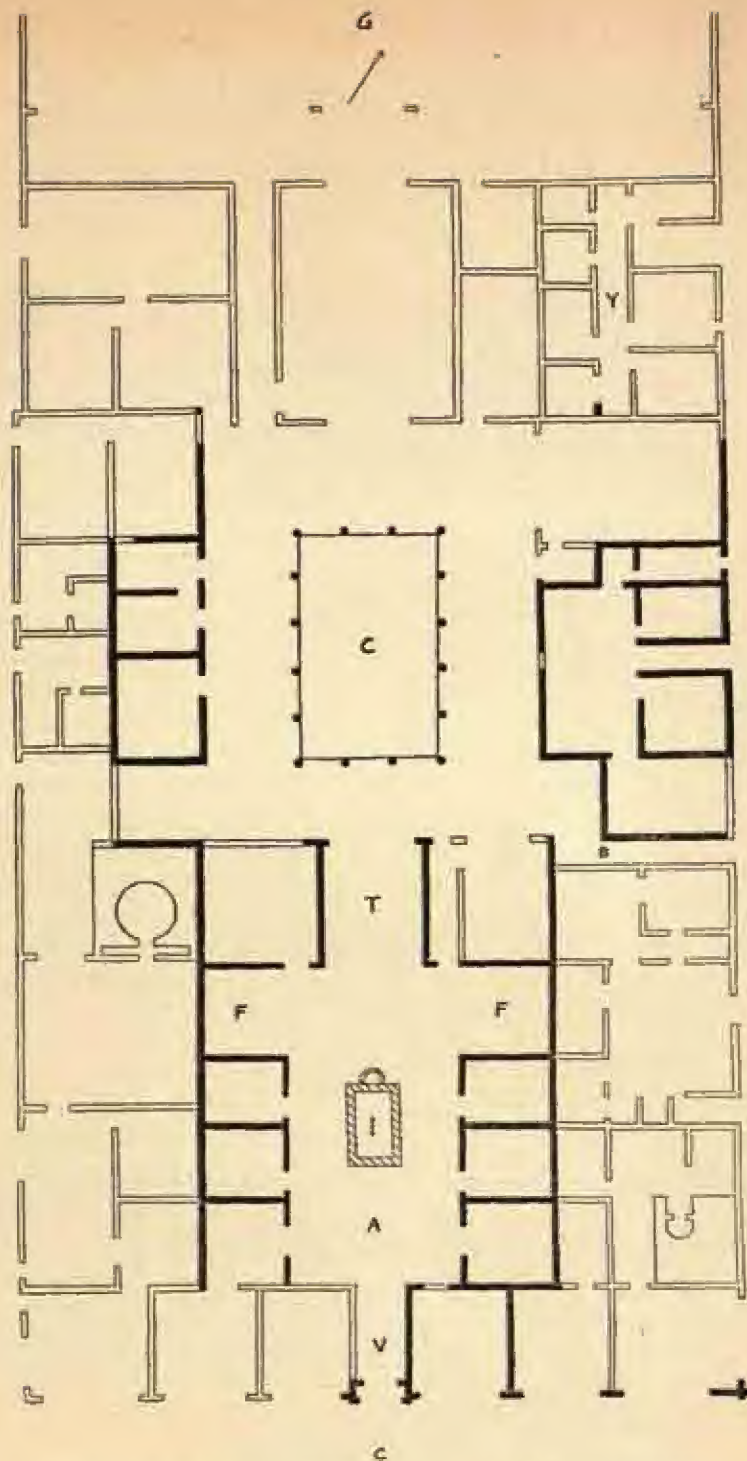


FIG. 1. PLANS OF POMPEIAN HOUSES:
 a, 'House of the Surgeon' (1st cent. A.D.). b, 'House of Sallust' (3rd cent. A.D.).
 c, 'House of Pansa' (2nd cent. A.D.).
 Black or hatched portions indicate the plan of the original house as far as they can
 be inferred from present remains.



A, Atrium. B, Postern. C, Peristyle. F, Ala. G, Garden. I, Impluvium.
T, Tablinum. V, Vestibule. Y, Corridor

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chronological series some of the most important types of house uncovered at Pompeii and Ostia, and to show that the variety of form which they present can be explained without difficulty simply by reviewing them in the order in which they were erected, and that, once they are assigned to their respective periods, they make it possible to trace a logical development through the domestic architecture of the two towns. It is hoped, moreover, that by treating of the houses in chronological order this paper will provide a short history of the town-house in ancient Italy from the 4th century B.C., when the earliest excavated house was erected at Pompeii, to the 2nd century A.D., which saw the zenith of Ostia's prosperity.

It must not be assumed that the plan of the house selected as representative of each period is reproduced in all its details by every house erected in the same epoch. Exigencies of the site as well as the means of the owner caused all manner of modifications. What is true, however, is that each house is typical in a general way of all the houses erected in the same age and is representative of the most up-to-date domestic architecture of the day. It will be long before a history of Italian town houses can be written with any fulness of detail, for at present the archaeological material is lacking and its excavation is necessarily slow. In view, however, of the systematic digging which is going on at Pompeii, Herculaneum, and Ostia, and the finds of importance which are occasionally made in the capital itself, it is only a question of time before sufficient evidence is forthcoming. When it does appear, it will require, not an article, but a volume to set out its historical import.

The excavations which were carried out in 1930 and 1931 under the floor-level of the so-called 'House of the Surgeon' at Pompeii (fig. 1, a; plates I and II), show that the earliest Pompeian houses, of which this is the best-preserved example, date from the 4th century B.C.² The house consisted in its original form of rooms arranged round a central area, or atrium (A). All the rooms are rectangular in shape except those flanking the main entrance (V), and of these one side departs from the rectangular only to conform to the line of the street. Two of these rooms were entirely open on the side facing the central area and were known in antiquity as *alae* (F); the others were real rooms entered through openings about four feet in width (plate II). Besides the main entrance the house had a *posticum* or *postern* (B) leading through one

² *Notizie degli Scavi*, 1930, pp. 381ff.

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of the alae to the southeast, but whether it led into a garden or into a lane is uncertain, as this subsidiary door was later closed and the area into which it led was built over. Opposite the main entrance was the tablinum (T), and beyond this must have lain a garden (G), but the exact dimensions of the garden are not known as the present enclosing wall is a later reconstruction. Beyond two very narrow windows in the façade of the house,⁴ the sources from which light reached the bedrooms and alae were the window in the tablinum and possibly the roof.

It is not known how the atrium was roofed originally. One of the most interesting results of the excavation has been to show that the present impluvium (I, and plate II) is not older than the 2nd century B.C., and that previously the floor had no impluvium at all, but consisted simply of beaten earth. When an atrium possesses an impluvium, it is clear that the whole area was covered except for the small space in the middle of the roof (compluvium), which corresponded to the impluvium in the floor. But when the latter feature is lacking, we have nothing from which to infer the form of the roof. Such is the case with the 'House of the Surgeon' in the form which it had down to the 2nd century B.C. It is possible that deep excavation under other houses of the same period will furnish evidence to suggest the form of their roofs. Until such excavation is undertaken, all argument will be hypothetical and all conclusions unreliable. All that is known at present is that during and after the 2nd century B.C. the atrium fell under Vitruvius' description of an atrium *Tusculum*,⁵ since the beams of the roof stretched from one wall to the other without the support of intermediate pillars.

The next stage in the development of the Pompeian house comes at the end of the 3rd century B.C., or, at latest, the very beginning of the 2nd, and is represented by the so-called 'House of Sallust'.⁶ The area of the house is larger and the plan is more symmetrical than that just considered, but the main features of the 4th-century dwelling are still to be seen (fig. 1, b). The atrium (A) with its surrounding rooms continues to be the centre of the house, though the rooms flanking the

⁴ One of these is visible to the right of plate 1. The left half of the façade was broken through during the 1st century A.D. to make way for a shop. Before this was done, we may assume that it resembled the right half.

⁵ VI, 3, 1.

⁶ A. Maiuri, *La Villa dei Misteri*, pp. 50ff.

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vestibule (v) have been opened on the side facing the street and converted into shops. It appears that the well-to-do Pompeian citizen was finding in retail trade a useful means of filling up the time of slaves and providing occupation for freedmen, who first began to come into notice at this time.

A glance at fig. 2, however, will show that in the course of the century which had elapsed since the erection of the 'House of the Surgeon', certain modifications had taken place. The house now possesses an impluvium (I), which, as far as is discernible, is coeval with the rest of the building, and, more important still, in the rear portion of the house which has been preserved almost in its entirety, a portico (P and plate III), is found running round the outside wall and facing on to a garden (G). On the south side the portico can no longer be traced and the space is at present occupied by a peristyle (c) of much later date, but the window of the southern ala, which was walled up when the peristyle was built, seems to demand a continuation of the portico on this side.

We have here, then, a more elegant house than the 'House of the Surgeon', the product of a more prosperous age. The atrium itself is larger, and properly drained, but more important than this is the evidence, provided by the portico, of a desire for more space and light than the confines of a badly-lit atrium could provide. In our ignorance of how the 4th-century house was covered, it is impossible to say how much light the rooms round the atrium derived from the roof. Clearly, however, when, at the end of the 3rd century, the roof-space through which light could penetrate was limited to the area of the compluvium, the rooms must have been dull and sunless. Thus it is not surprising that, as luxury increased, it brought a protest against the dominance of the atrium and a demand for airy porticos.

The improvement that resulted appears to have been a spontaneous Italic growth, owing nothing to foreign influence, for the columns of the portico are built of roughly hewn limestone blocks and the capitals show no sign of the Greek designs which were to become ubiquitous in Pompeii during the full flowering of the Hellenistic age.

We shall see that this movement away from the confines of the atrium, this desire to increase the importance of the outside walls of the house, though side-tracked during the 2nd century B.C. under the influence of the Greek peristyle, asserted itself once more during the 1st century of our era when shortage of land led to the development of certain new features in the house which rendered the problem of lighting acute.

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At the beginning of the 2nd century B.C., Pompeii entered the full tide of Hellenistic civilization. During the course of the next fifty years, the houses of the wealthy assumed palatial proportions and still form one of the chief attractions for the visitor to the town.¹ The grey tufa, which is the characteristic building material of this age, responds readily to the chisel and was extensively used for capitals, columns, and pilasters. Beyond greater size and more elegant detail, the chief innovations in the plan of the house were two in number. In the first place, the atrium became more elaborate and in addition to the simple Tuscan type were developed the more elaborate atria-tetrastylia, Corinthia, etc., of Vitruvius' classification. Columns, usually four in number but at times as many as eight, were placed round the edge of the impluvium to support the roof, being a sheer necessity in those houses where the span of the atrium was too large for a single beam, but in smaller areas serving purely as ornament. These columns were not universal in houses of this century, but on the whole are a characteristic feature of the age.

A second innovation consisted of an enclosed garden surrounded by a portico (peristyle), which was added to the atrium under direct inspiration from the ἀνλὴ of a Greek house (fig. 1 c, c). The craving for light and space, which the atrium had failed to satisfy and which, at the end of the 3rd century, was diverting attention from the inside of the house to its external walls, was now satisfied on conservative lines; for the peristyle became a second area in the house round which rooms could group themselves, as earlier they had been grouped round the atrium. This second area was, however, more open and better lighted than the first, being a garden surrounded by a portico, whereas the atrium had come to be, in fact, a closed area with a hole in the roof. The importation of the peristyle put an end for a time to the tendency, whose beginnings were manifest in the external portico of the 3rd century, to make the house face outwards rather than inwards.

The combination of atrium and peristyle had a long popularity. Even in the middle of the 1st century A.D., when new fashions had come into vogue, such houses were still being erected. A typical example is the well-known 'House of the Vettii' at Pompeii, which is throughout an erection of the last thirty years before the eruption. In an age of freedmen, like the early days of the Roman Empire, when

¹ One of the most striking of these is the 'House of Pansa' (fig. 1, c), which at present occupies a whole insula or house block. Although it was not as large as this when first erected, yet the surviving portions of the original walls show that it was of imposing size.

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success in trade and industry raised many humble workmen from obscurity to prominence in their native town, such houses came to be regarded as the hall-mark of an established position. The innovations which will be traced in the next section were due indirectly to the spread of industrialization. The aristocracy of Italy, firmly rooted in the land, eyed them askance and the would-be aristocrat followed suit. Hence the atrium and peristyle continued to be built merely because they were old-fashioned and respectable. Up-to-date opinion, however, from the Augustan age onwards, began to seek something more consonant with the changing economic conditions.

Of the three types of house which have been described, only the third contained more than a single storey. During the 2nd century B.C., upper floors were not uncommon in Pompeii and they need to be considered before we pass to the next stage in the chronological series. The possibility of erecting an upper floor clearly depends on the strength of the walls which will have to carry it. Houses of the types described contain two kinds of construction. The façades were, as a rule, built of ashlar masonry (plate I), whose external appearance gives an impression of great solidity, but which, in fact, tends to become insecure when it attains any height, owing to the small thickness of the blocks (about 10 inches) in proportion to their depth (about 2 feet). The inner walls were made of rubble, quoined at angles and door-posts and reinforced at other vital points by pillar-like blocks of limestone or tufa, laid alternately in a horizontal and vertical position (plate II). Thus the horizontal blocks served to bind the door-post to the wall. Such reinforcement, though adequate for a one-storeyed house, was as a rule not strong enough for more, since the pillar-like blocks tended under pressure to become detached from the rubble wall and so to collapse.

In the 'House of the Surgeon' the aggregate of the rubble is broken limestone and pumice, and the binding-material is clay. This clay, which has by now been reduced to a fine powder, contains small white particles, suggesting that possibly a little lime was mixed with it. The quantity of lime was, however, very small and, thus, we cannot dignify the clay with the name of mortar. Walls built of such rubble were evidently felt to be insecure, since in the 'House of the Surgeon', to increase their solidity, they were built on a framework of long limestone blocks, laid, as just described, alternately in a horizontal and vertical position. It is not unnatural, therefore, that no attempt was made to erect a second storey on walls of such doubtful consistency.

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By the end of the 3rd century, when the 'House of Sallust' was erected, lime had come into general use, and the aggregate of the rubble was held together, not by clay, but by mortar. In consequence of this the walls of the house were firmer and capable of being carried to a greater height. Though they thus, even at this time, invited a second storey, it was not until the period of the 'House of Pansa' that upper floors actually appeared. Remains of them are now difficult to find and consist of the holes left in the walls by the ends of the beams which carried the floor. It is recorded that when the house was excavated (1811) the carbonized remains of some of the beams were found still adhering to the rubble. A second storey seems to have existed over all the small rooms surrounding the atrium and some of those round the peristyle. It is significant, however, that no traces have survived of the staircases by which access was obtained to the upper floors, and from this we may infer that they were made of wood and were flimsy in structure. The height of the ground-floor rooms (about 16 feet) rules out the possibility of a high or important upper floor.

Thus, in general, we may say that houses of the first three types at Pompeii were mainly of a single storey, but that early in the 2nd century B.C. the possibility of upward development had begun to be envisaged, and the first tentative steps towards it were made in the course of the century. These steps did not, however, proceed far enough to affect in any way the ground-plan of the house.

A further point in reference to the plans contained in fig. 1 remains to be mentioned. If a one-storeyed house grows at all, it must do so by increasing the ground which it covers, and a comparison of the three plans makes it clear that from the 4th to the 2nd century B.C. a considerable increase had taken place. Horizontal expansion of this kind implies that building-land was plentiful, and, in fact, there are many indications that, down to the beginning of the 1st century B.C., it was not difficult at Pompeii to find either virgin sites or land covered by small buildings which could readily be demolished. From the 1st century B.C. onwards, however, it would seem that such sites were no longer available. The development of Pompeian industries and the growth of population which is the regular concomitant of industrialization was the chief cause which put building land at a premium. A contributory cause was the plantation of a colony of veteran soldiers in the town by P. Sulla, nephew of the Dictator, soon after 80 B.C.: this event must, temporarily at any rate and to some extent, have increased the demand for land. The house with atrium and peristyle

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became more and more of a luxury, for it required a ground-area out of all proportion in size with the number of rooms that were built on it.*

At the same time building materials were changing. The ashlar façades and quoining of the early houses afforded, as we have seen, inadequate support for a heavy second floor owing to their tendency to sag or to become detached from the rubble wall. A new material, however, came into use during the 1st century B.C. and was employed with increasing frequency from the Augustan age onwards. This new material was brick-faced concrete. A core of concrete rubble was faced with flat triangular bricks or tiles, laid with the apex of the triangle penetrating the core and thus binding it firmly to the face (plates IV, VII). A wall or pilaster built in this way has the advantage over the ashlar masonry which was used in the earlier periods, that, though it be carried to the height of several storeys, it will stand quite firm, the rubble and the face forming a solid, unyielding mass.

No wall has been found in any Pompeian house which is faced throughout with triangular bricks. The new material seems to have been expensive, since, most probably, it had to be imported from some distance. But after the Augustan age it was used in doorposts, columns, and pilasters, at corners and other points of special stress, with increasing frequency.

Thus a scarcity of land coincided with the development of a material which made possible the construction of many-storeyed buildings, and the result was similar on a small scale to the result of just such a combination which has taken place in large towns of the modern world—a vertical tendency in architecture. Such is the nature of the last developments which are to be traced in the Pompeian house.

Even apart from the question of building materials, the problem of converting a single-storeyed atrium into a multiple storeyed house was not easy. It would have been simpler to jettison the old plan altogether and, as from one point of view is happening in architecture at the present day, to ask, not how new materials could be adapted to old designs, but what designs were called for by the new materials. But considerations of economy suggested the adaptation as far as was possible of existing buildings (*e.g.*, by replacing ashlar pilasters, and door-posts with brick-faced concrete), and it is the innovations and

* An indication of this is given by the plan of the house shown in fig. 2, a. The peristyle has here been abolished to make way for a bake-house, and the living rooms which would normally have surrounded it were placed over the atrium in a second storey.

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experiments which thereby came to be made that afford the clue which we are seeking to the relationship between the Pompeian and the Ostian type of house.

The first need, when the rooms of the atrium had acquired a second storey, was to devise some means of intercommunication between those on the upper floor. This need was met by the use of balconies, situated either inside the atrium along each of its four walls, or along one of the external walls of the house, overhanging the pavement of the street. The commonest type of internal balcony is supported by four columns (plate v) or pilasters (plate iv), one at each corner of the impluvium, and covers the whole area which lies between the impluvium and the walls (fig. 2, a). If the balcony was required on one or two sides only, it was built without the supporting pillars. A staircase was situated in one corner of the atrium and was made either of wood (plate v) or of stone (fig. 2 a, s). In plate v an important consequence of this new architectural development is apparent. The atrium, as such, has ceased to exist. The space round the impluvium is merely a narrow corridor putting the ground-floor rooms in communication one with the other. The balcony, which runs over it, serves the same purpose upstairs, while the empty space between the compluvium in the roof and the impluvium in the floor has become merely a well of light to illuminate the surrounding rooms. Yet the problem of lighting the rooms round the atrium has been rendered acute, for in practice this well of light is not nearly adequate for its purpose.

The second type of balcony was intended to offer a way out of this difficulty (plate vi). External balconies were either roofed or open, but whatever their precise form, they served a double purpose. They not only, like the balconies inside the atrium, formed an upstairs corridor and means of communication, but also provided a method of compensating for the lack of light inside the house since they necessarily had to be lighted from outside. Hence their wide windows, looking, not inwards to the atrium, but outwards to the street.*

Thus there were two ways in which, at the time of the eruption, the domination of the atrium was being broken down: its area was being taken up by balconies and corridors, and its function as a means of lighting was passing to large windows situated in the external walls.

* Owing to the narrowness of the street, it was impossible to take a photograph which would give a true idea of the width of these windows. In plate vi they appear to be narrower than they actually are.

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In this way, the movement away from the atrium, which began as early as the 3rd century B.C., and was temporarily retarded by the importation of the peristyle, began during the 1st century of our era to proceed towards its logical conclusion and resulted in changes of so revolutionary a nature that the continuity of development has generally been obscured.

A last innovation to be noticed at Pompeii is a consequence of the other two. When once the plan of external lighting had been adopted, it became possible to let any number of the rooms facing the street to extraneous people without thereby impinging on the privacy of the atrium. All that was required was either a separate entrance or, if the rooms were on the first floor, a separate staircase, from the street. Such an entrance is shown in plate VI, where, beside the main door on the right, there is a subsidiary opening on the left leading directly to a room which has no communication with the main body of the house.

No single building is found at Pompeii in which all the three developments which have been illustrated—internal and external balconies, and upper rooms approached directly from the street—occur simultaneously. The reason for this is, seemingly, that at the time of the eruption, the innovations were still in an experimental stage. Old houses were being adapted for new purposes and as far as possible the old walls were being kept. The architect had to be wary in making new additions. More than one old wall has been found that has sagged under the strain newly put upon it. Hence the full implications and possibilities of the innovations which we have described are nowhere seen at Pompeii. Vesuvius overwhelmed the town before they were realized, and to understand them fully and to see their final development we must look to Ostia, a town which was spared the fate of Pompeii and remained an important centre of trade until late in the 3rd century A.D.

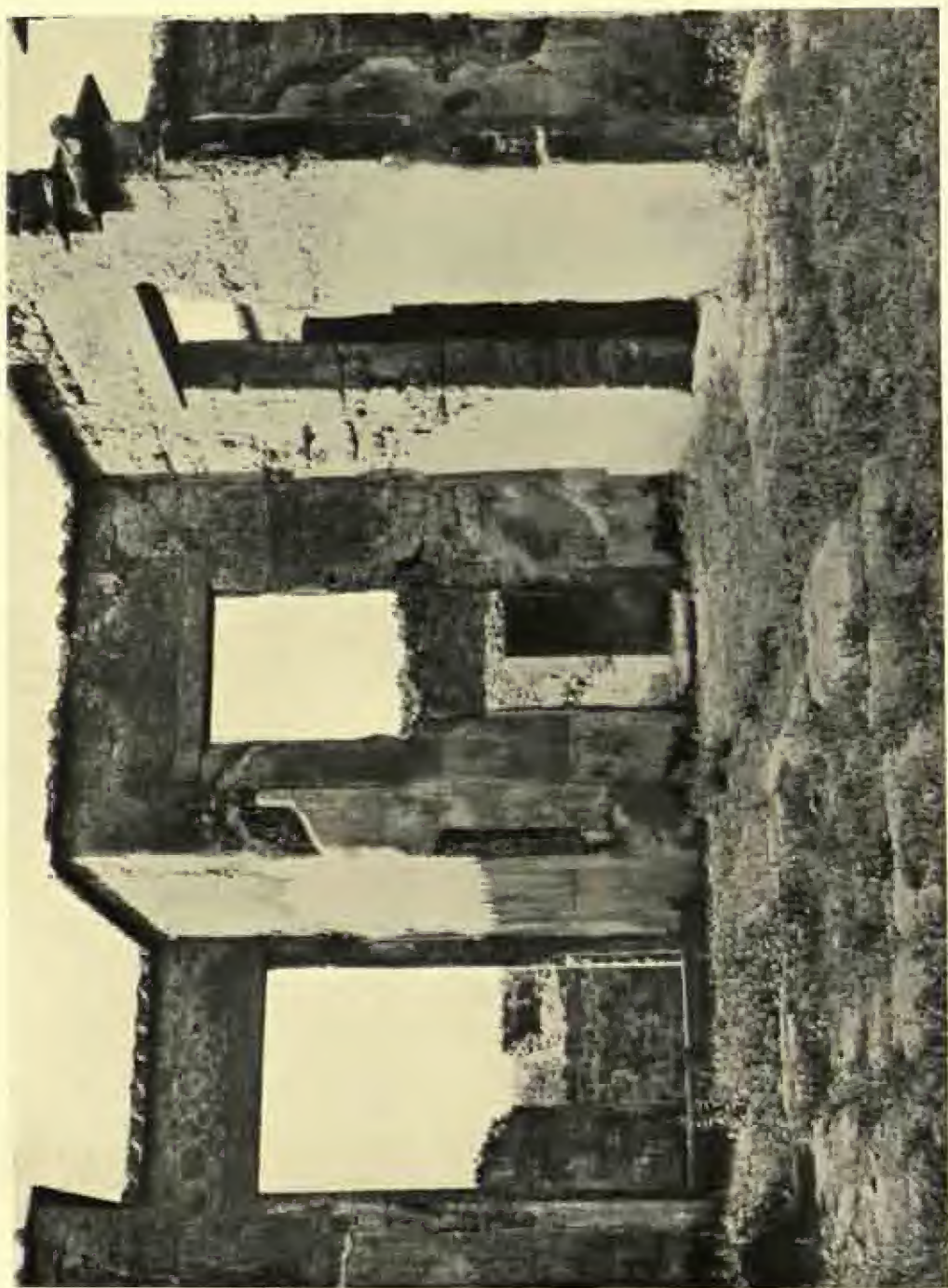
Fig. 2, d, shows the ground-plan of the 'House of Diana' at Ostia, which is built throughout of brick-faced concrete and can be dated from the style of its brick-work to the latter part of the 2nd cent. A.D. Two storeys and part of the third have been restored in position (plate VII), and from the debris discovered in the vicinity it can be inferred that originally the house had five or six. It was not intended, like the Pompeian house, for the use of a single family, but was rather a block of flats, let off in portions to numerous families. The inner rooms of the several floors are grouped round a small cortile (fig. 2 d, i), from which they draw practically all their light. They communicate by

PLATE I



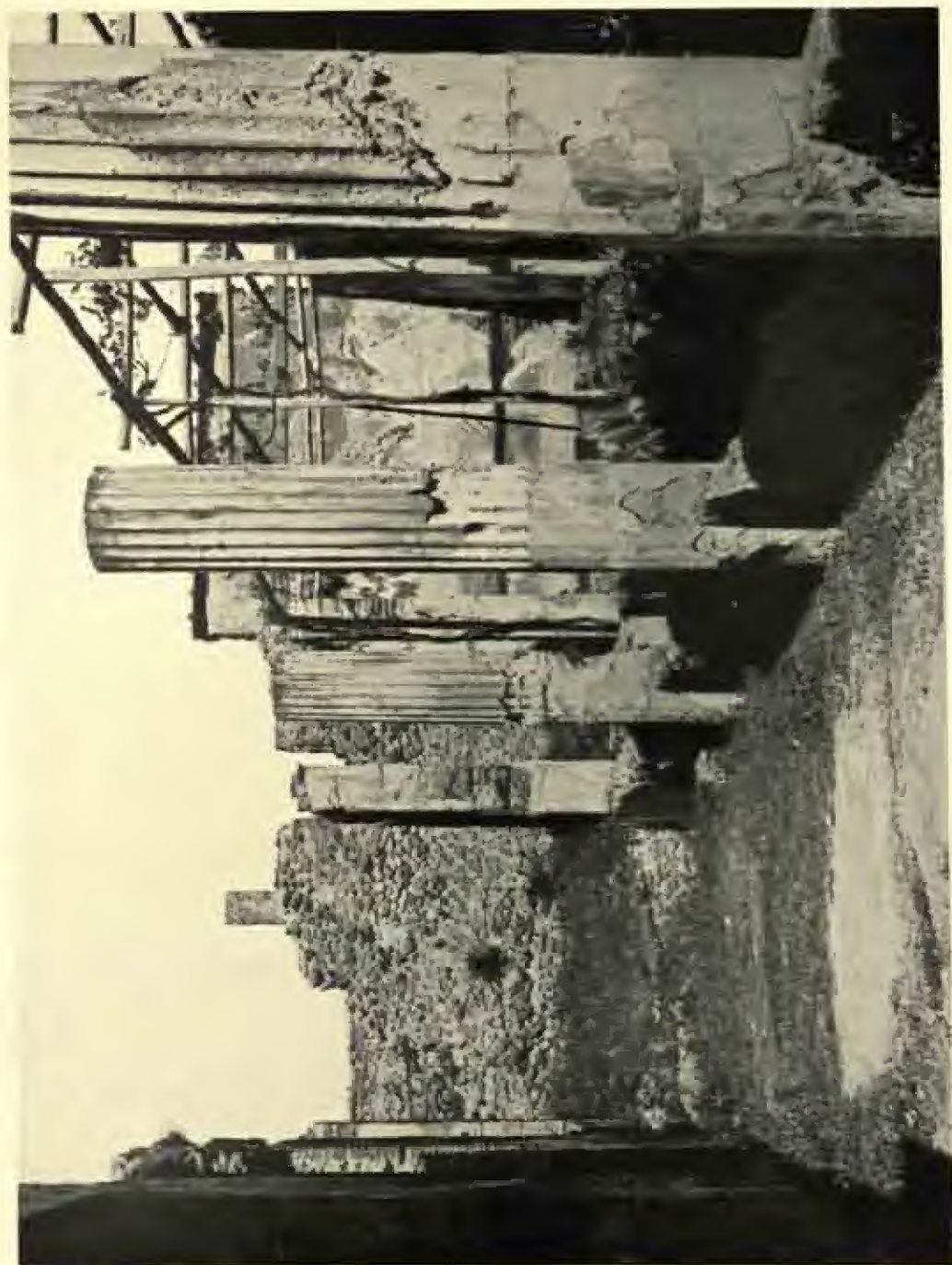
FACADE OF THE HOUSE OF THE SURGEON, POMPEII (4TH CENT. B.C.), FROM SOUTHWEST
Plates I-IV p. 6, R. C. Carrington

PLATE II



ATRIUM OF THE 'HOUSE OF THE SURGEON', FROM EAST

PLATE III



PORTICO OF THE 'HOUSE OF SALLUST', POMPEII (800 CENT. B.C.), FROM SOUTH

PLATE IV



ATRIUM OF A POMPEIAN HOUSE, ERECTED A.D. 63-79 (= 84, 28), FROM EAST, SHOWING THE
PIERS AT THE CORNERS OF THE IMPLUVIUM AND THE SPRINGING OF THE VAULT

PLATE V



ATRIUM OF A POMPEIAN HOUSE (1st CENT. A.D.), SHOWING THE COLUMNS AND BALUSTRADE
OF THE BALCONY, RESTORED FROM THE ORIGINAL MATERIALS

PLATE VI



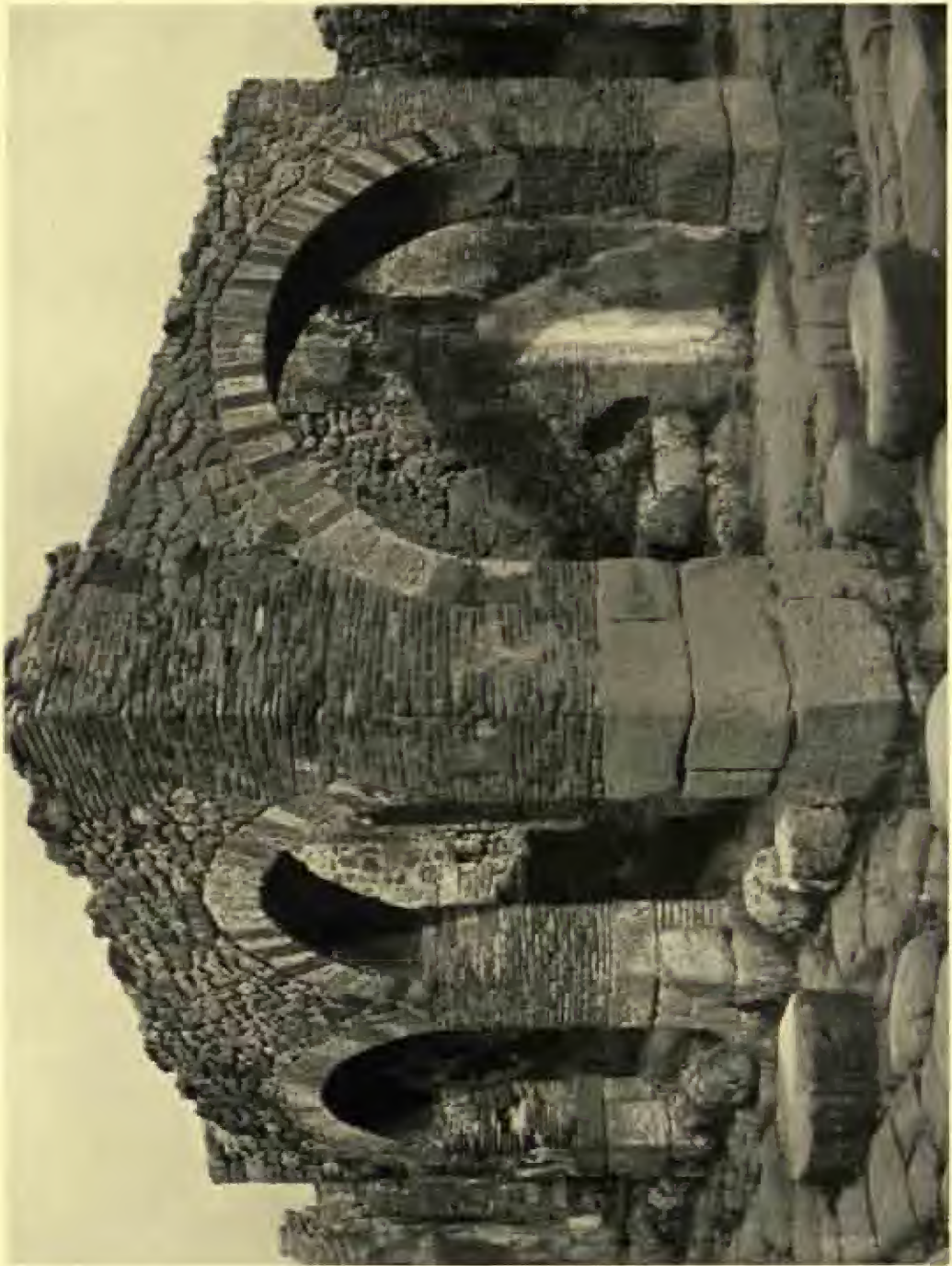
FAÇADE OF THE 'HOUSE OF THE HANGING BALCONY', POMPEII (1ST CENT. A.D.), RESTORED

PLATE VII



SOUTH FRONT OF THE 'HOUSE OF DIANA', OSTIA (LATE 2ND CENT. A.D.), FROM EAST

PLATE VIII



ARCHES DESIGNED TO CARRY A SECOND STOREY OVER THE PAVEMENT OF THE STREET, POMPEII (1ST CENT. A.D.)

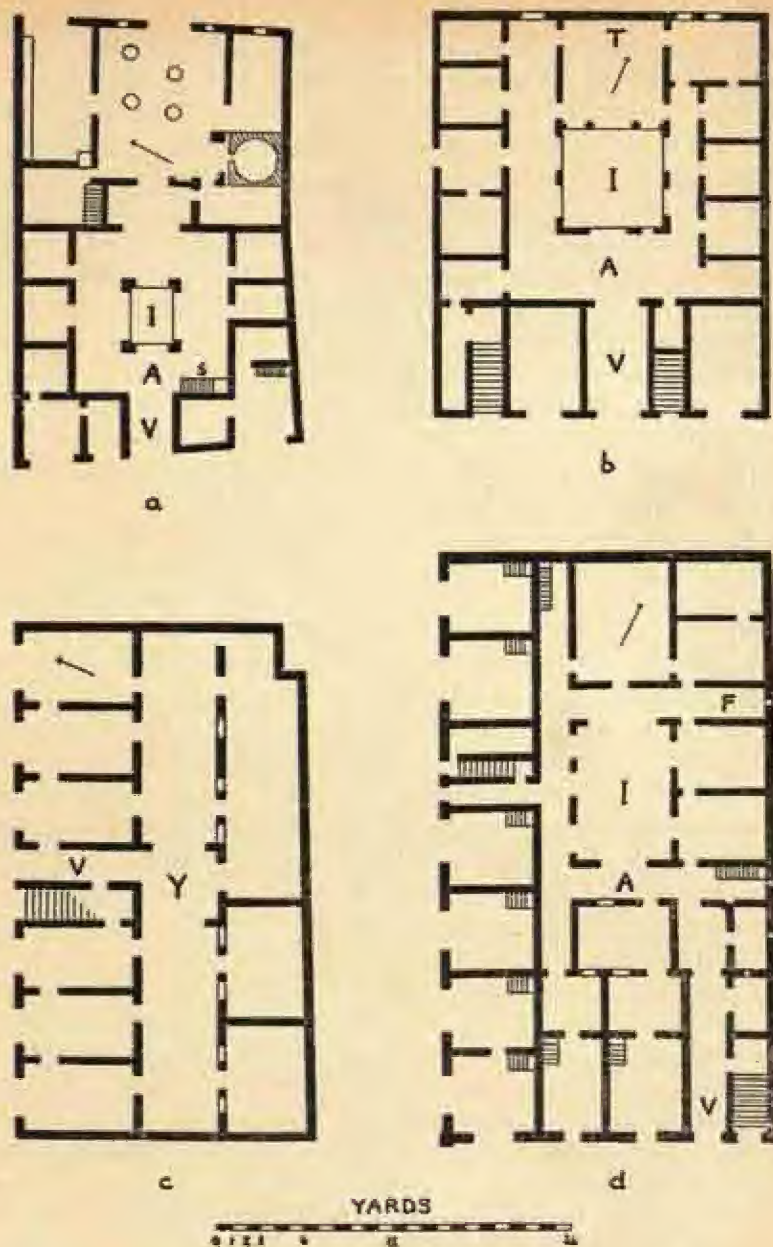


FIG. 2. HOUSES OF POMPEII AND OSTIA

a, Pompeii (A.D. 63-79). b, Ostia: 'House of the Round Temple' (early 3rd cent. A.D.).
 c, Ostia: Corridor-house. d, Ostia: 'House of Diana' (late 2nd cent. A.D.).
 A, Atrium, or area into which it developed. F, Ala. I, Impluvium, or Cortile. S, Staircase.
 T, Tablinum. V, Vestibule. Y, Corridor

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means of a corridor which runs round three sides of the cortile: on the fourth side (east), the area of the corridor has been included in the rooms, which, as a result, have to open one off the other, and its function is served by a line of doors. The west and south sides of the house, which are bounded by streets (the north and east sides abut on other buildings) are composed of shop-openings on the ground-floor and, above, of living rooms with windows facing over the street. The windows of the third storey open on to balconies which overhang the public causeway. Two staircases are found leading directly from the street to the upper rooms.

The similarities between the innovations which were taking place at Pompeii in A.D. 79 and the fuller developments which we find at Ostia a century later are striking. They go further than the row of shops which line the street and the staircases giving direct access from the outside to the upper rooms. They concern the whole composition and plan of the house. Brick-faced concrete, use of which at Pompeii was confined to points of special stress, has become universal and is employed in all the walls. The well of light formed between the impluvium and compluvium has been enlarged to the area of a cortile, while that portion of the atrium which surrounded the impluvium has been narrowed into a simple corridor on three sides and on the fourth has been replaced by a line of doorways. The Pompeian balcony which ran round the inside of the atrium at the level of the second storey has here become a second-storey corridor. The external balcony which was formerly supported by the wooden beams of the upper floor protruding through the outside wall is now composed of brick-faced concrete, like the dwelling to which it belongs, and grows out of the wall of the house in the form of a vault (*cf.* plate VI). The difference is one, not of principle, but of constructional detail.

Nor, must it be noticed, was this particular type of balcony unknown to Pompeian architects. In the public baths which lie at the north end of the Forum, the concrete core of such a balcony is plainly visible and leaves no doubt about its original shape, even though the brick facing has perished. This architectural feature was thus known to Pompeian builders.¹⁰ The nearest approach to it which

¹⁰ Professor Maiuri (*Atti etc., loc. cit.*) believes that this balcony dates from the Sullan age, the period of the original construction of the baths. The yellow tufa, however, which occurs in its rubble core, is of a kind which appears not to have been used as aggregate before the middle of the 1st century A.D., and makes me incline to the view that the balcony is a later addition, dating from the last decades before the eruption.

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is found in a private building is illustrated in plate VIII, where the vault of the second storey is supported by pillars which rise from the pavement of the street.

It is true that in the 'House of Diana' little trace is found of the *alae* which had been an important feature of the Pompeian house during the first three periods. The only survival of them consists in a corridor to the northeast of the cortile (F). But we may notice that even in the latest Pompeian house (fig. 2, a) the *alae* as such have ceased to exist and their place has been taken by rooms of the ordinary kind. The *alae* were an integral part of the atrium and the supersession of the one involved the disappearance of the other.

The 'House of Diana' at Ostia is but one of several Ostian houses in which connexions with Pompeii can be traced. An equally striking example is the so-called 'House of the Round Temple', a plan of which will be found in fig. 2, b. The central cortile again occurs (I), here paved in marble and containing the remains of an ornamental fountain which recalls the ostentation of several late Pompeian impluvia. Round the cortile runs a corridor and to the north is a wide, open room reminiscent of the *tablinum* (T). Facing the street to the south were two independent shops and two staircases leading to the upper floors, which no longer survive. The whole is constructed of brick-faced concrete, the workmanship of which shows a considerable decline from that of the 'House of Diana' and suggests a date somewhere in the 3rd century A.D.

Thus it seems reasonable to conclude that the Ostian houses which we have examined represent a logical development from the Pompeian house of the 1st century A.D.¹¹ In them we find united in a single architectural scheme and in their final shape all the tentative innovations and partial experiments which Pompeian builders were essaying in the years before the eruption. At Ostia, however, the architect is sure both of his plan and of his materials. The dominance of the atrium is quite broken down and the feeling that the house must 'face inwards' has

¹¹ Though this paper is concerned primarily with the more typical and better-known houses of each period, it seemed worth while to include the plan of a so-called 'corridor-house' at Ostia (fig. 2, c), since it shows marked similarities with a house built on the fringe of the 'House of Pansa' at Pompeii during the 1st century B.C. (fig. 1, c, Y). A comparison of these two plans, in which rooms open off both sides of a corridor running the full length of the house (Y), suggests that, even in the less pretentious dwellings which grew up round the houses of the wealthy, a continuity of design can be traced.

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gone. At the same time simple rubble walls have been abandoned and the danger of collapse removed by a material of unsurpassed solidity.

A few scraps of literary and archaeological evidence may next be considered which either tend to justify the claim that the growth which has been traced in the houses of Pompeii and Ostia was typical of a process going on in all Italian cities, or seem at first sight to deviate from this scheme of development and thus demand a word of special consideration.

The plans have been recovered at Ostia of some half-dozen houses dating from the republican era (before 30 B.C.), all of which are formed of rooms built round an atrium. Moreover, when Horace, about 20 B.C., wrote 'atria servantem postico falle clientem',¹² he clearly implied that this type of house was common in Rome in his day. This evidence is in harmony with that of Pompeii.

It is, then, all the more surprising to find that the earliest references in literature to upper storeys concern a period as early as the middle of the 5th century B.C. Dionysius of Halicarnassus¹³ preserves the tradition that, by a 'lex Icilia' which was passed at this time, the Aventine Hill was handed over to the Roman plebs as building land, and that in the ensuing rush for sites families were constrained to live two or three together in the same house-block, some of them having the ground-floor rooms and others those above. Dionysius does not state that these dwellings were erected on the top of the Aventine and it is thus not impossible that they were propped against its slopes. The same cannot, however, be said of a house which is mentioned by Livy as being in existence two centuries later. Livy states that among the portents which happened in 218 B.C., at the crisis of the Hannibalic War, an ox climbed unaided to a third floor in the Forum Boarium and, terrified by the uproar of the inhabitants, hurled itself to the ground.¹⁴ The Forum Boarium was a flat area between the river Tiber and the Palatine Hill, and thus the passage indicates that as early as the 3rd century a three-storey building was erected on a level site.

We know nothing, however, about the form of the buildings mentioned by Dionysius and Livy or of the materials of which they were made. It is significant that Livy's portent is supposed to have occurred

¹² *Epistler*, 1, 5, 31.

¹³ x, 32, 4.

¹⁴ *xxi*, 62, 3.

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just about the time when good, hard mortar came into use at Pompeii. The discovery of lime, so far as our evidence goes, seems to have been the circumstance which made possible the extensive use of upper storeys. Hence we cannot merely dismiss Livy's portent as imaginary or his third storey as a reflection into the past of a feature of his own times, since the development which can be traced in Pompeii during the 2nd century may have begun in large cities a few decades earlier. Plautus, it is to be noted, made Jupiter jokingly remark 'in superiore qui habito cenaculo',¹⁵ as though the novelty of upper floors had not yet worn off and they could still be made the subject of a jest.

But if we infer that in 218 B.C. a third storey was as unusual as the feat performed by the ox, the difficulty created by the passage of Dionysius appears to be still more acute. The implication of his words is that, in the period of the 'lex Icilia', houses were required in a hurry for humble people. Such people, even at Pompeii, did not live in atrium-houses but in humbler dwellings, usually situated on the fringes of house blocks. The atrium of the types which we have illustrated was the house *par excellence*, the residence of well-to-do citizens. The hovels of the poor must have been constructed on a far less pretentious scale,¹⁶ and the absence of survivals of them today suggests that they were made of wood and wattle. It is not difficult to carry an unpretentious house with wooden framework and wattle walls to the height of a second storey, and it is quite conceivable that constructions of this type were known in Rome during the 5th century B.C. It is a far cry, however, from anything that could be erected of such materials to the 'House of Diana' at Ostia. The passage of Dionysius, as well as the portent recorded by Livy, is altogether too weak a foundation to support an argument that house-blocks of the Ostian type had developed in Rome at the periods to which they refer.

If we pass on to the 1st century B.C., we find that difficulties have been created by a passage of Cicero, who, as early as 63 B.C., had spoken of Rome as 'in montibus positam et convallibus, cenaculis sublatam atque suspensam', and had compared it (to Rome's disadvantage) with Capua—'planissimo in loco explicata ac praeclarissime sita'.¹⁷ These words have been used to support the argument that Rome was composed

¹⁵ *Amphitruo*, III, 1, 3.

¹⁶ The picturesque wooden huts, propped one against the other on the east beach at Hastings, Sussex, and used by fishermen to store their tackle, consist for the most part of three storeys.

¹⁷ *De Lege Agraria*, II, 35, 96.

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of houses of the Ostian type, while the dwellings of Capua resembled the one-storeyed Pompeian atrium.¹⁸ Such use of the words is, however, unwarranted. Rome's inferiority to Capua, according to Cicero, lay in its site and general disposition, and the absence of any words applied to Capua, parallel to 'cenaculis sublatam atque suspensam', shows that this phrase is merely intended to corroborate his description of the site of the city.

It is more likely that Cicero's reference to 'cenacula' concerns the practice of increasing the flat building area on the top of a hill by means of terraces projecting over the sides and supported by pillars. Such terracing was later to be carried out on a grand scale in the imperial palace on the northeast slope of the Palatine. It was exemplified at Pompeii during the century and a half which preceded the eruption. The old city walls fell into disrepair on the west and southwest sides where the slope of the hill on which the town was built dropped sharply, and their place was taken by houses erected on terraces, piled against the hill's steep sides, whence they enjoyed a magnificent view towards the island of Capri. The words 'sublatam atque suspensam' are quite applicable to a house supported by structures of this kind. Finally, it is noteworthy that, at Herculaneum, it was the houses which were escarped on the rocky slopes of lava facing the sea that possessed verandas and terraces of outstanding magnificence, while the houses of the centre of the town 'remained faithful to the type and lay-out of the Samnite house of the pre-Roman era'.¹⁹

It is thus conceivable that special circumstances such as the existence of a steep slope might tempt builders to use it in buttressing a house of many storeys, even though they would not risk such a house on level ground, and might lead at any time to a type of building to which Cicero's words were not inapplicable. 'Cenaculum', in a broad sense, meant any room that had to be approached by stairs, and it is reasonable to suppose that it could be used equally as well in describing a house piled against the slope of a hill as in a multi-storeyed house on a flat site. Thus it is unsafe to use Cicero's words as evidence that houses of the Ostian type had been evolved at Rome by 63 B.C.

It is clear, however, that before the end of the Augustan age the vertical tendency in architecture had begun, for Strabo states that

¹⁸ G. Calzà, 'Le Origini Latine dell' Abitazione Moderna', in *Architettura e Arti Decorative*, 1923.

¹⁹ A. Maiuri, 'The People of Herculaneum', an article in *The Times* of 29 Sept. 1931.

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Augustus limited the height of new buildings to 70 feet (*i.e.* 70 Roman feet—about 68 English feet).²⁰ It is uncertain how high the buildings of Pompeii were before their destruction, since after the eruption the tops remained protruding above the lapilli and ash which covered the town, and for that reason have perished. To judge from present remains, however, few buildings can have exceeded the height of 40 feet. It would be interesting to know precisely what kind of buildings at Rome had exceeded the 70-foot limit, for the application of Strabo's words cannot be limited to private houses. But in the absence of such knowledge, his statement proves only that the vertical tendency began in Rome a decade or two earlier than in Pompeii and that it reached greater heights.

Such priority is not surprising, for the district of Rome was the chief centre of the manufacture of bricks and could provide a continuous and cheap supply. This architectural development was as closely bound up with the use of brick as the similar tendency today depends on the use of steel. There is some indication that at Rome, as at Pompeii, the 1st century A.D. was a period of experiment in which the speculations of builders did not always coincide with the demands of public safety, for Nero is said to have reduced Augustus' maximum and Trajan to have fixed it finally at 60 feet.

Two points remain to be mentioned which serve to link up the ancient Italian house, on the one hand with buildings which have been taken to be subsequent developments from it, and on the other hand with certain supposed survivals from prehistoric times.

The first concerns a suggestion that the colossal blocks of flats (*casamenti*), surrounding a central garden, which are a typical feature of Italian town-planning schemes of the present day, are directly descended from ancient houses of the Ostian pattern.²¹ The suggestion gains plausibility if we view the medieval palazzo, with its internal courtyard, as a link between the two. In a country which is scorched by strong sunshine in summer, the central cortile is naturally a persistent feature, since some part of it is always in the shade whatever the direction of the sun.

Again, once the continuous development of the cortile from the atrium is realized, the problem of the original form of the atrium itself is put in a clearer light. The common view is that it developed from a

²⁰ V, 134.

²¹ G. Calza, *op. cit.*

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wigwam-like hut with a hole in the top to let out the smoke which rose from a central hearth. Gradually the area of the hut was increased; partitions were placed round its walls and the space between developed into rooms. The hole in the roof finally became so large that the rain came through it and thus the impluvium was devised.

An alternative theory has been put forward, though it has not received much recognition up to the present time, according to which the original nucleus was a group of covered huts which were placed side by side for protection and convenience so as to enclose a small square area.²² This enclosed area, in origin a farmyard or cortile, developed among town-dwellers into the atrium as we know it in the 'House of the Surgeon'. The town-house, in fact, developed from the same fundamental type as the farmhouse of classical times, which was composed of a yard surrounded on all sides by buildings.²³ Such a fundamental identity of origin is not unnatural among a people which was mainly agricultural. This theory is in harmony with the view put forward in this paper in that it suggests that the atrium, which we have represented as the ancestor of the cortile, was in origin itself an open yard and not merely an enlarged smoke-hole.

If this view is correct,²⁴ the bee-hive dwellings of Apulia, which were recently illustrated in ANTIQUITY and said to be 'certainly prehistoric',²⁵ and the wattle huts of Gabii, which Ashby cites as possibly giving 'an image of those in which the primitive population must have dwelt',²⁶ thus fall into the scheme of development which we are trying to trace as direct descendants of the huts which were, at a prehistoric period whose limits can no longer be determined, placed together round a central area and thus formed the first farm-yard. This hypothetical, prehistoric farm-yard: the old atrium of Pompeii; the well of light of the 'House of Diana'; the cortile of the medieval palazzo; and the enclosed garden of the modern casamento—all these are the links of a broken chain which stretches from prehistoric times to the present day.

²² G. Patroni, 'L'Origine della Domus', in *Rendiconti della Reale Accademia dei Lincei*, XXI (1912), pp. 206ff.

²³ R. C. Carrington, 'Studies in the Campanian Villae Rusticae', fig. 16, *Journal of Roman Studies*, XXI (1931).

²⁴ For the difficulty of the subject, see D. S. Robertson, *A Handbook of Greek and Roman Architecture*, pp. 304-5.

²⁵ December 1932.

²⁶ *The Roman Campagna in Classical Times*, p. 39.

The Azanian Civilization of Kenya

by G. W. B. HUNTINGFORD

DURING the last few years archaeological research has revealed a remarkable, though not altogether unexpected, view of Stone Age man in Kenya; and at the same time it has been realized that there existed at some period between the Stone Age and medieval times a civilization which has left traces over a large part of East Africa. This civilization appears to be quite distinct from the Stone Age cultures, and there is so far no evidence to connect the two, nor is there any similarity between them. For the Stone Age men lived in caves and unbuilt habitations: while the men whose civilization I shall try to describe built substantial enclosures of stone, dug hut-circles and revetted the walls, made properly engineered roads, and possessed the art of irrigation. This civilization I propose to call 'Azanian'¹ in order to distinguish it from the Stone Age cultures and from the Islamic ruins found in certain parts of East Africa. It has been claimed that traces of this civilization, in the shape of roads and irrigation works, occur in Abyssinia, Uganda, Tanganyika and North Rhodesia² as well as in Kenya. But the stone enclosure and hut-circle, which to my mind are the distinctive features, have so far been reported only from Kenya and Gala-land (South Abyssinia); though for the present we may assume that the Tanganyika remains also belong to it.

In this paper I shall refer chiefly to Kenya, and though it will not be necessary to describe the geography in detail, it may be as well to note the main features. From the Indian Ocean to Lake Victoria, a distance of some 500 miles, the land rises gradually from sea-level to 9000 feet, descending again to below 5000 feet at Lake Victoria. This country has five natural stages: first, the coastal plain, a narrow strip

¹ From *Ἀζανία*, the name given by classical geographers to East Africa from Cape Guardafui to the southern limit of the known world (about lat. 10° S). The word may mean 'the dried-up country', from *ἀζαῖρος*, 'I am dry'; cf. *azaniae nuces*, 'dried-up pine-cones', Pliny, *Nat. Hist.* xvi, 44. For large tracts of East Africa this meaning is most appropriate.

² Capt. G. E. H. Wilson in *MAN*, 1932, 298.

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often sandy and covered with thorn-scrub, which rises gradually to the second stage, a tract of thorn-scrub (1000-3000 feet), in parts a semi-arid uninhabited wilderness, rising again to an elevated region of



SKETCH-MAP OF KENYA COLONY

Asanlan areas shaded: //////////////// Kenya boundary shown by thick black line

grass-land (3000-5000 feet), where the Highlands begin. Through this part runs the Rift Valley, and the stupendous escarpments associated with it, forming the fourth and highest stage, rising to over 9000 feet

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where the Equator crosses the Mau escarpment ; the land then drops to the basin of Lake Victoria. This country is very unequally watered, and the rainfall very uneven. There are two distinct rainfall areas, on the east and on the west of the Rift Valley. The western area has on the whole a higher rainfall, and the number of permanent rivers and streams is greater ; it is in this area that Azanian remains are most numerous and most advanced, for though they occur in less fortunate parts, they are found here in greater perfection, and here too, from long. 35° to $37^{\circ} 30'$ E, is the region now inhabited by European settlers. In the northern part of Kenya conditions are different. Once the grass and forest lands of Laikipia or Mount Kenya are passed, a large tract of unpleasant desert is entered, the Northern Frontier Province of Kenya, beyond which lies Abyssinia and Gala-land, where conditions improve. To the south of Kenya lies Tanganyika Territory, where ancient remains have been noted, an inhospitable country with miles of waterless land and thorn-scrub.

The Azanians have left behind them numberless traces in the shape of buildings and earthworks of various kinds. The following classification covers all types so far recorded :—

I. STONE ENCLOSURES : A, single, with entrance-passage ; B, single, without entrance-passage ; C, double.

II. HUT-CIRCLES : A, of earth ; B, of earth, revetted with stone ; C, like A or B, but with an annexe.

III. TUMULI AND CAIRNS.

IV. LINEAR EARTHWORKS.

V. IRRIGATION WORKS.

I. The stone enclosure consists, in its simplest form, of a roughly circular dry-stone wall surrounding a slight hollow. In some enclosures an entrance-passage occurs, roofed with slabs of stone (fig. 1). An enlarged form of this is the double enclosure, in which two enclosures, each having its own entrance, stand side by side sharing a common centre-wall (fig. 2). These buildings vary from 25 to 60 feet in diameter, and the walls, which are mostly free-standing, range in height at the present day from 3 to 10 feet.

II. The hut-circle, in its simplest and commonest form, is a circular hollow dug out on a slope, with a nearly level floor, and an entrance on the lower side protected by banks formed of the upcast

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from the excavation (fig. 3). The hearth is generally near the door. The second type of hut-circle is constructed in the same manner, but the sloping sides are revetted with stonework, generally of very rough execution, though sometimes attempts at coursing and bonding are seen. From these developed type c, in which a semicircular hollow, with its floor at a higher level than the main floor, forms an annexe at the back or side of the hut. The depth of these circles varies from 4 to 10 feet, and the diameter from 8 to 30 feet. In some places a large

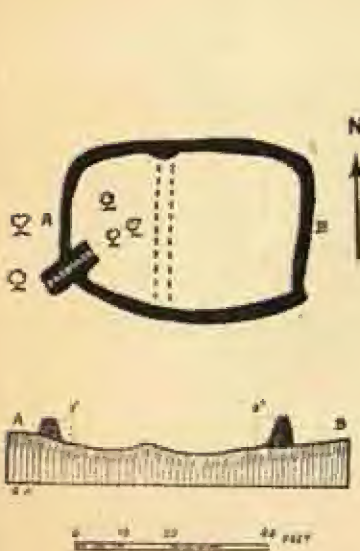


FIG. 1. PLAN AND SECTION OF STONE ENCLOSURE ON FARM 906, UASIN GISHU

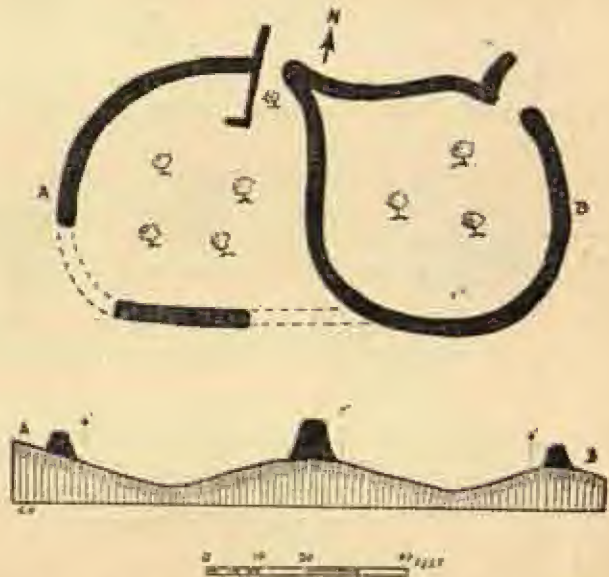


FIG. 2. PLAN AND SECTION OF DOUBLE STONE ENCLOSURE ON FARM 907, UASIN GISHU

number of circles are grouped together and form villages, and sometimes two and even three circles open into one another; the largest village I have seen contains 60 to 70 circles.

These two forms of construction are the most noticeable feature of Kenya Azanian work; and the earth-circle is found throughout the Azanian area, in the districts of Trans-Nzoia, Uasin Gishu, Nandi, and Kericho (west of the Rift Valley), and Lai-Kipya, Meru, Nakuru, and Kyambu (east of the Rift Valley), as well as in northern Tanganyika.

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The stone enclosure appears to be peculiar to Uasin Gishu, and the revetted circles occur there, in Nandi, and near Nakuru.²

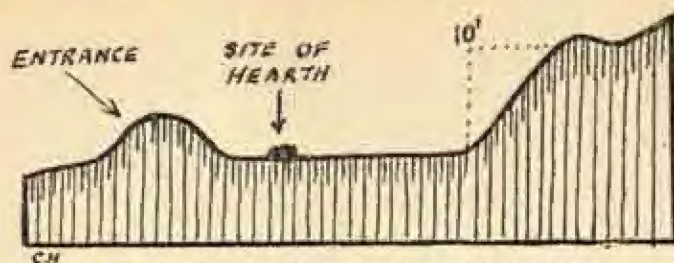


FIG. 3. (A) SECTION OF A TYPICAL¹ EARTH HUT-CIRCLE

III. Tumuli, or artificial earth mounds exist in a few places : one, which is 8 feet high and 45 feet long, is in the middle of a large

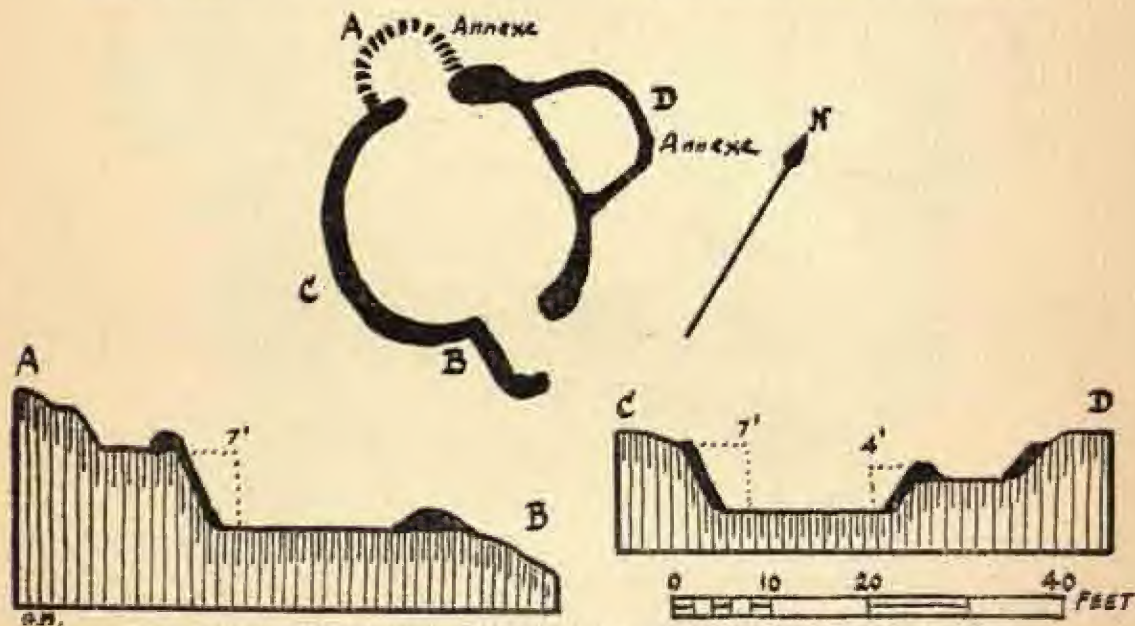


FIG. 3. (B) PLAN AND SECTIONS OF A REVETTED HUT-CIRCLE, TUKTUK HILL, KIPKAREN

pit-village in Kipkaren (fig. 4) ; three others stand on the bank of the Chemnoet river, some 3 miles away, apparently guarding a ford. In a

² Dr Leakey, in *Stone Age Cultures of Kenya Colony*, claims that the Nakuru circles belong to the Gumbau B phase of the Neolithic period.

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country where large ant-hills abound, it is not always easy to distinguish artificial from natural mounds ; but a definite flat summit, and hollows at the base from which the material was dug, are indications that a mound may be artificial.

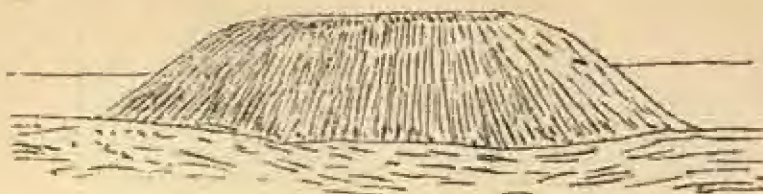


FIG. 4. TUMULUS IN PIT-VILLAGE, TUKTUK, KIPKAREN
(Height, 9 ft. Length, 45 ft.)

Cairns, on the other hand, are unmistakable. They are mounds of stones, up to 15 feet in height, and are beyond doubt graves. In Kenya they are recorded from Wajhir and Merti (Northern Frontier Province), the Sabaki Valley (Malindi district), the Nyando Valley (south of Nandi) and eastern Nandi (fig. 5). The latter, from evidence of tradition, are probably 19th century Masai graves⁴ ; the former may be referred tentatively to the Azanians.

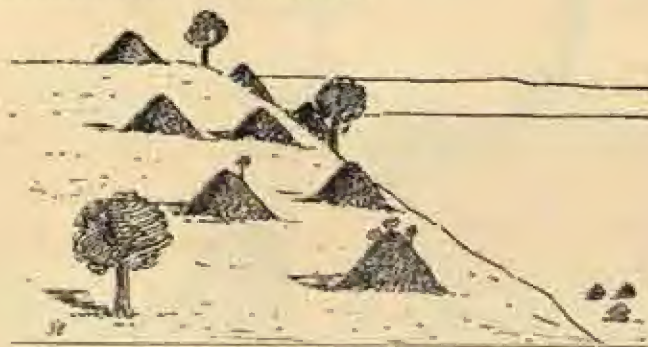


FIG. 5. GROUP OF CAIRNS LO-L-MENENGAI ('PLACE OF GHOSTS') EAST NANDI

IV. Under the term Linear Earthworks are included (A) artificial works which are beyond doubt roads ; (B) works which appear to be ditches rather than roads. Undoubted roads, which in some places are graded, and in others pass through hillsides in cuttings not unlike

⁴ G.W.B.H. in *J.R.A.I.*, LVIII, 439, 460.

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railway cuttings, and cross swampy ground over carefully made embankments, occur in Kenya and Tanganyika. Such a road, with cuttings and embankments, crosses the east side of the Uasin Gishu plateau (fig. 6). Sometimes a ditch may be really a sunk road, as in the case of a series which encloses on two sides the farm where I live. Here in 1922, before the land was ploughed, two lengths of ditch were visible for a distance of over 600 yards, running between low banks from one river to another, and re-appearing across the river, which

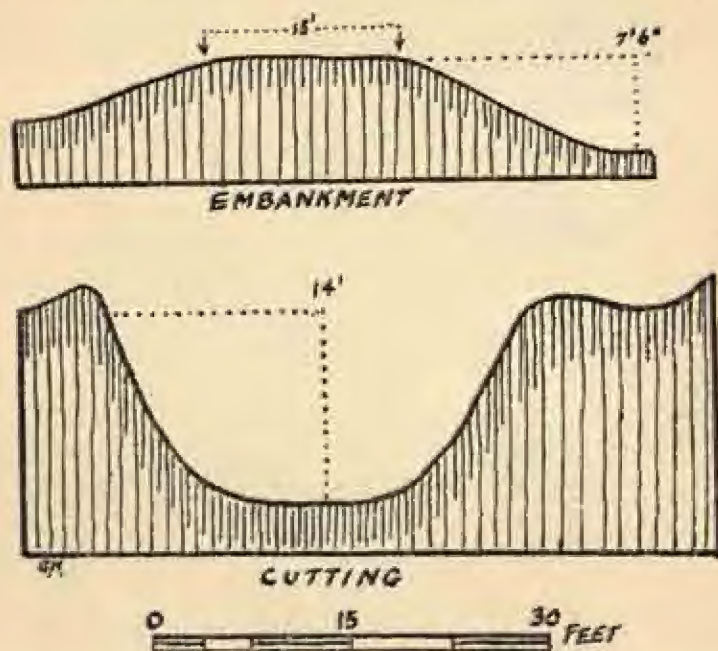


FIG. 8. SECTIONS OF ANCIENT ROAD EAST OF KAPTEKAT RIVER, UASIN GISHU

must have been crossed by a wooden bridge, as it is not fordable there (fig. 7). On Tilolwa Ridge in Nandi occurs a ditch which is plainly not a road, and equally plainly not of natural origin; a length of some 250 yards (no more is recorded) has a higher bank on the upper side than on the lower (fig. 8).

V. Irrigation works include canals, terraces, and wells. So far, ancient canals have been seen in Kenya in Nandi only: the best example I know is 5 feet deep and 3 feet wide in the last 100 yards of its course.

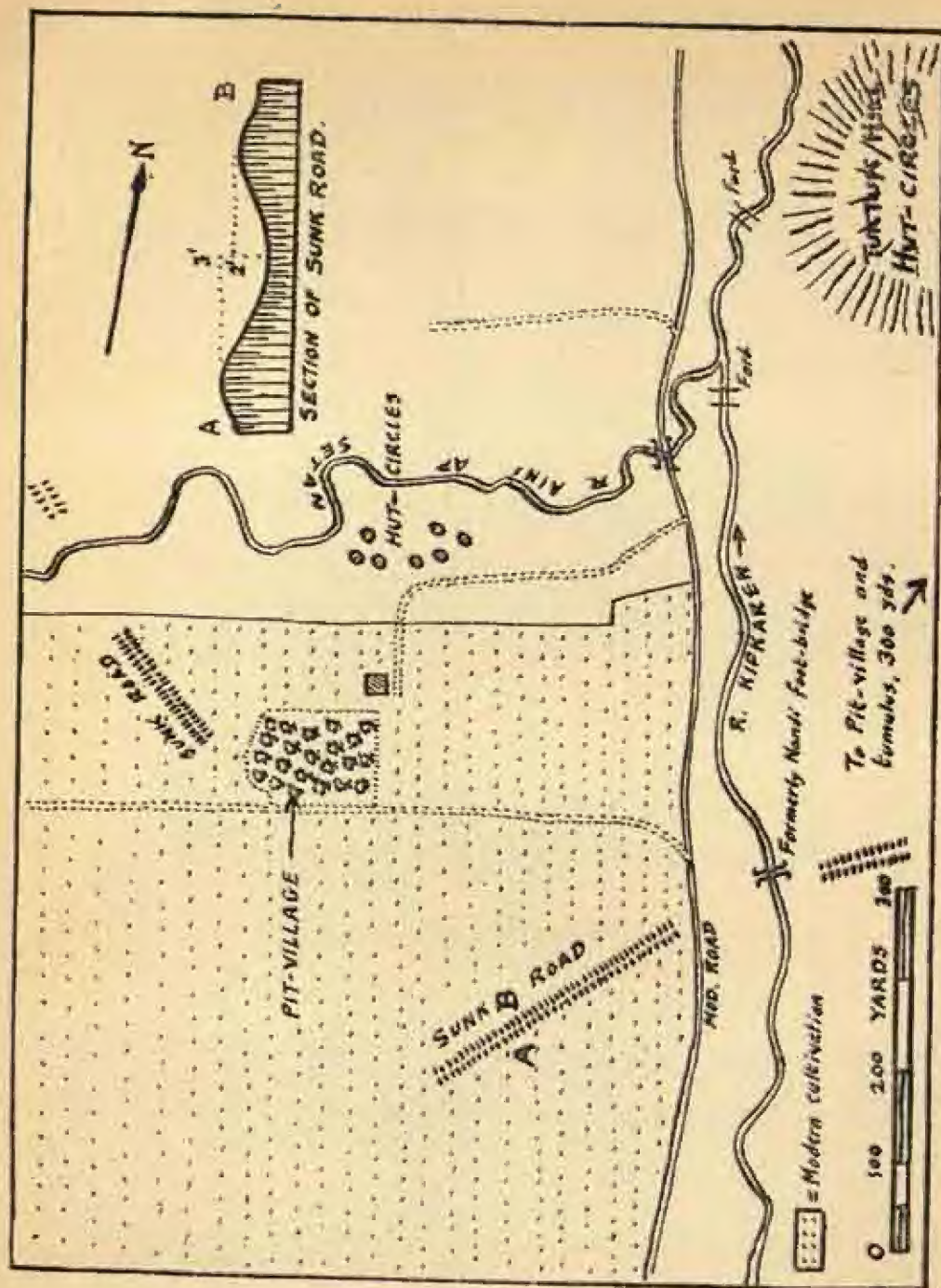


FIG. 7. MAP OF SUNK ROAD, AIN' AP SETAN, KIPRAKEN

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Irrigation by means of such canals, often of some length, is still practised in Kenya by the Suk and Marakwet (backward tribes of the Nandi group) on the west escarpment of the Rift Valley. They are too barbarous to have learned it themselves, and it is probably an Azanian legacy. Terracing, which consists 'in all cases of parallel terraces following the contours of the hills', has been noted in many places in Tanganyika,³ though not yet in Kenya. Wells occur in at least five places in Kenya:

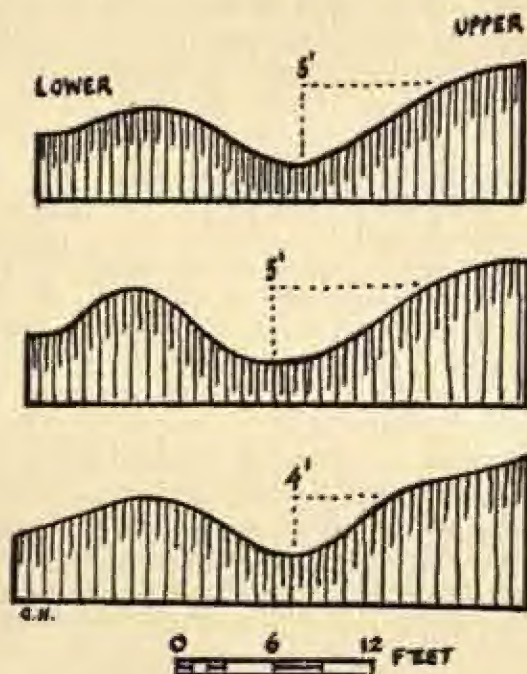


FIG. 8. SECTIONS OF DYKE ON TILOLWA RIDGE, NANDI

Eil Wak, Katulu, Wajhir, and Arbo in the Northern Frontier Province, and at Selengei in Masai. At Eil Wak the wells are some 60 feet deep, and 15 feet wide at the mouth; at Wajhir there are some 400 wells in an area of 2 square miles, and many of them still function.⁴ This area, where cairns also occur, is desert, without rivers, and water can only be got by digging; other Azanian areas have sufficient river-water to obviate the need of well-sinking, though not of irrigation.

³ Wilson, *loc. cit.*

⁴ C. B. G. Watson in *MAN*, 1927, 30.

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The use of stone for buildings—however rough, the construction of roads, and the use of irrigation and terraces in agriculture, implies some sort of a civilization; and the remains we have to deal with, if homogeneous, seem to merit description as a 'civilization' rather than as a cultural phase of a civilization. And the study of them, as far as it goes, reveals certain facts which are worthy of notice. Firstly, the Azanian areas in Kenya and northern Tanganyika are to a great extent those now occupied by the modern Nilo-Hamites (the Masai and Nandi groups). Secondly, the population was much larger than it is at the present day; a preliminary survey of Nandi which I carried out some years ago shows that the number of hut-circles (which are unquestionably dwelling-places) is at least ten times the number of modern dwelling-huts in certain areas. Thirdly, the Azanians seem to have preferred, on the whole, to build their dwellings higher above the rivers than do the modern natives. And lastly, the agricultural system in the more level areas of Kenya, where terracing is not necessary under methods of hand-cultivation, must have been very similar to modern native methods; for a cultivated plot, once abandoned, rapidly reverts to bush, and after a space of years can no longer be distinguished.

These are the main features of the Azanian civilization as known to me. Now who were the Azanians, and when did they flourish? The question is difficult, but an answer may be attempted. From native tradition in Kenya and Tanganyika, which space forbids to quote in full, we gather that the Tanganyika terraces etc. were made by a people called the Bearded Ones, the Tall Ones, or the Enemies, who came from the north⁷; that the Uasin Gishu remains were the work of a tall, 'red' people who came from the north⁸; that the Northern Frontier wells and cairns were made by a people called Maanthinle, which is said to mean 'Tall People'; and that these names refer to one race which came from the north. Whatever race it was, it has long ceased to exist, and since we find no tradition that the ancestors of modern tribes (*e.g.* Masai, Nandi) ever came in contact with it, we may suppose that the time when these modern tribes entered Kenya will give us at least one terminus. This date I would place

⁷ Wilson, *loc. cit.*

⁸ G.W.B.H. in *Journ. E. Africa and Uganda Nat. Hist. Soc.*, 1926, 24, 25. I should add that the Masai and Nandi ascribe the ruins to a people they call 'Sirikwa', who historically were a division of the Masai, and whose name has become a synonym for 'the ancients'.

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about the beginning of the 15th century A.D.⁹ At one time I thought that there might be a connexion between the Rhodesian ruins and those in Kenya ; but against this may be urged : (1) the workmanship and construction are very different ; (2) Zimbabwe has been shown to be Bantu work, while for Azania there is a certain amount of evidence for an Hamitic origin. Rhodesia, it is true, can show terraces, roads, and hut-circles, as well as forts, which last are absent from Kenya ; but the general character of the Kenya Azanian work seems Hamitic rather than Bantu. No defensive works in Kenya can be attributed to the Azanians ; and earthworks recently discovered near the Kakumega gold-field were probably made by the Bantu Kakumega as defences against the marauding Nandi, and belong to the 19th century. Their defences consist chiefly of bank with little or no ditch.

Many years ago Sir H. H. Johnston referred to the use of stone ' for building rough graves [cairns], making rough walls [enclosures] or even setting up stone circles [? hut-circles] on the plateaus near Mount Elgon ', and traced these to ' the not far-off influence of the Hamite '.¹⁰ In Somali- and Gala-land—the cradle of the Hamites—there are ruins ascribed to a people ' who preceded the Gala ', called Awwalin, or ' ancient inhabitants ',¹¹ which consist of blocks of dressed stone in regular formation, parallel revetment walls on hills commanding passes, ancient water-tanks,¹² and ' hollow rings of rough blocks, circles measuring about a cubit in diameter '.¹³ This civilization seems to have been swept away by the Islamic conquerors during the 8th century A.D.¹⁴ In modern times, too, the Gala, who are Hamitic and of great antiquity, live in huts composed of circles of rough stones roofed with grass,¹⁵ or in some cases, slabs of stone.¹⁶ They also erect cairns, which are circular, and vary in height from 12 to 15 feet, with an average diameter of 24 feet.¹⁷ Burton describes ancient ' Gala ' cairns as sometimes having internal chambers propped with timber,

⁹ I have not space to give the details of this dating in full, and can only say here that it is not a mere guess.

¹⁰ *The Opening Up of Africa* (Home University Library), p. 62.

¹¹ Sir R. F. Burton, *First Footsteps in East Africa*, 1, 116.

¹² *Encyclopædia Britannica*, 11th ed. xxv, 380.

¹³ Burton, *loc. cit.* I do not know whether he means hut-circles ; if he does, ' a cubit ' for the diameter must be an error.

¹⁴ *Encycl. Brit.*, *loc. cit.*

¹⁵ *Encycl. Brit.*, xi, 414.

¹⁶ Seligman, *Races of Africa*, p. 123.

¹⁷ *Encycl. Brit.*, xxv, 380.

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and containing—in one case—a gold bar and ring ; from other cairns he heard of ' women's bracelets, beads, and similar articles still used by the Gala '.¹⁸ He also mentions the ancient and widespread custom of people adding a stone to a cairn as they passed by,¹⁹ reported also of the Masai by Hollis.²⁰

From all this, we may surmise that a civilization which flourished in the Horn of Africa at some time during the first seven hundred years A.D. was destroyed by Islam, that its makers retreated southwards through Kenya (where Islam never penetrated), and that it finally came to an end somewhere about the 14th–15th century, possibly earlier. That it was of Hamitic rather than Bantu origin seems to be an unescapable conclusion. Such at any rate is the view I take of it. And it is not unreasonable to suppose that the Azanians had a hand in the establishment of the ports which existed from an early period on the east coast, such as Adule,²¹ the modern Zeila, called Audal by the Somali ; Aromatophora, or the ' Spice-market '²², called Portus Mossylicus by Pliny, ' to which cinnamon is brought '²³ ; and Rhapta,²⁴ probably Pangani, south of Tanga ; though as to the origin of these ports we are very much in the dark. In Pliny's day, the interior of East Africa was truly a terra incognita, and the ancient knowledge of it may be gauged by Pliny's words : ' it is said that in the parts interior from the east coast there are people whose whole face is flat, without a nose ; and that some have no upper lip, others no tongue. We hear also of people who have no nostril nor any opening in the face beyond a single hole through which they breathe, and through which they drink by means of an oaten straw, the grain of which, growing wild, they eat. Some tribes use nods and gestures instead of speech, and before the time of Ptolemy Lathyrus King of Egypt were ignorant of the use of fire '.²⁵ Pliny, it is true, names the ' Ploughmen Aethiopians '

¹⁸ *First Footsteps*, II, 125. ¹⁹ *ibid.*, I, 130.

²⁰ Sir A. C. Hollis, *The Masai*, p. 306.

²¹ Ptolemy, IV, 7. ' Ἀδοῦλη.

²² Ptolemy, IV, 7. ' Ἀρωματοφόρα, Ἀρωμάτων ἰμπόριον. Near Guardafui.

²³ Pliny, N.H., VI, 34.

²⁴ Ptolemy, IV, 7. τὸ Παπτά, which in Greek means ' the stitched things ', and may refer to the use of inflated skins for sailing upon ; such a use in the Arabian gulf is both ancient and modern.

²⁵ Pliny, N.H., VI, 35.

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near Adule,²⁶ who possibly represent the plough-using Gala; and Ptolemy calls the people near Rhapta the 'Rhapsian Aethiopians',²⁷ who cannot now be identified.

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²⁶ N.H., vi, 34.

²⁷ iv, 7. 'Ράψιοι' *Ἀιθίοπες*.

The Age of the British Flint Mines

by GRAHAME CLARK and STUART PIGGOTT

THERE were two main sources of supply of flint available to early man,—superficial deposits whether in the form of river gravels, sea or lake beaches, or nodules incorporated in surface soils, and deposits beneath the surface of the ground for which it was necessary to mine or quarry. While it is generally true to say that mined flint was of superior quality and more easily worked than the superficial variety it must not be forgotten that the magnificent honey-coloured flint of Grand Pressigny, which in the dawn of the first age of metal was traded to Switzerland, North France, Brittany, Belgium and even Wessex,¹ occurs naturally in the form of surface nodules. In passing it may be observed that the so-called *livres de beurre*, the most typical product of these Chalcolithic workshops, are technically no more nor less than elongated tortoise-cores from which were struck long flakes with faceted butts.² In view of the play that has been made with the presence of 'Mousterian' technique in our British mines this is not without its significance.

The distribution of flint mines in Europe³ is indicated on the map (fig. 1). Their control by cretaceous formations is fairly evident as

¹ In the Blackmore collection at Salisbury there is a fine narrow flake, six inches in length and of the unmistakable honey-coloured flint of Grand Pressigny. It has a shallow triangular section, showing two primary flake-scars with a central ridge of intersection opposite the flat bulbar surface. The butt is faceted. On either side of the pointed end there is secondary flaking from both edges but in each case on the upper face only. Near the butt-end there is a notch on one edge. Both the nature of the raw material and the technique of working betoken a product of the workshops of Grand Pressigny. This object, which is hitherto unpublished, is labelled as coming from 'Furlong Farm, West Grimstead', a site to the southeast of Salisbury.

² M. C. Burkitt, *Prehistory*, p. 68.

³ Only well authenticated flint mines have been included in the map. Thus, so far as England is concerned, we have made various omissions, chief of which are the primitive pits at Maumbury, sometimes classed as flint mines. These pits are admittedly baffling, but the flint mine explanation seems to us definitely wrong: e.g., the base of pit 1, which is 30 feet deep, is described as 'basin-shaped' and as having a diameter of 1.5 feet by 1.2 feet. The improbability that anyone would sink a shaft 30 feet to extract less than two square feet of flint does not require stressing. See *Dorset Field Club*, vols. XXIX-XXXI. Other flint mines are suspected at High Wycombe (*Museum Journal*, 1902-3, II, 156), and at three sites in Norfolk: Buckenham, Eaton, (both in *J. Ethn. Soc. Lond.*, ser. 2, vol. II, 432), and Whitlingham (William Arderon, *Royal Society*, 1746, and information from H. H. Halls); in none of these cases, however, is the evidence sufficient to justify inclusion on the map.

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FIG. 1. DISTRIBUTION MAP OF EUROPEAN FLINT MINES

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is only to be expected, though the Chalcolithic mines at Monte Tabuto near Syracuse are in tertiary limestone. The cherty flint in this case was extracted by lateral galleries driven into the hillside, sometimes for a distance of 50 metres and excavated by basalt axes. The Swedish mines near Malmo which endured from Neolithic to Early Iron Age times are interesting as they are driven into chalk, which geologically speaking is not *in situ*, but consists of huge glacial rafts. We have no space here to discuss the affinities of the English mines with those in France, Belgium and Holland, though this is brought out to some extent by a consideration of the antler and bone mining instruments found in the mines of these regions (fig. 2). Thus the typical antler pick (1) is found, among other places, at Grimes Graves, Cissbury, Harrow Hill, Blackpatch, Avennes, La Petite-Garenne, Champignolles, Spiennes and Obourg, while the so-called 'rake' (2) occurs at Grimes Graves, Blackpatch, Harrow Hill, Champignolles and Spiennes, a two-piece example of which the prongs are here illustrated (4), also coming from this latter site. Other types include perforated axe-hammers (3) and hammers (11), antler crown hammers (7), wedges and levers of various types (5, 8-10), scapulae used as shovels (6), and a remarkable two-piece pick (12).

Outside Europe flint mines occur in North Africa and the United States. The methods employed in extracting the flint from the mines and quarries of 'Flint-Ridge', Ohio, provide a striking example of determination overcoming natural difficulties.⁴ When the flint was reached through the overlying soil it consisted of a seam four or five feet thick resting in or on limestone. This was gradually cut through by the continued application of fire and cold water until the underlying limestone was reached; the exposed faces of the flint seam were then coated with clay for protection, and the underlying limestone burnt away without damaging the flint. The flint was then easily removed by the use of quartz or granite boulders of from 20 to 150 lbs. The raw material was traded as far as New York, Illinois, and eastern Virginia.

The mining skill displayed by the European flint-miners was often quite considerable. Having discovered a suitable seam of flint probably by means of an outcrop the miners sent their shafts ruthlessly through seams of inferior material to the proper level. Often, as at Spiennes (fig. 3), where they had to pass through recent, quaternary and tertiary deposits of a total depth in some cases of over thirty feet before the chalk

⁴ W. K. Morehead, *Primitive Man in Ohio*, chap. iv.

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FIG. 2. IMPLEMENTS OF ANTLER AND BONE FROM EUROPEAN FLINT MINES

1, Grimes Graves (after Sandars). 2 and 4, Spiennes (after Sandars). 3 and 5, Mar-de-Barres (after Boule)
 5, 6, 8, Harrow Hill (after Curwen). 9, Mesvin (after Sandars). 10, Grimes Graves (after Armstrong).
 11, 12, Noiset (after Sandars)

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was reached, a great deal of 'dead work' had to be put in before the flint was obtained. In such cases extensive galleries radiating from the base of the shaft were often made when local conditions permitted. A good view of such a gallery showing the chalk roof-supports is given by the plate, p. 176. When, however, the flint seam came nearer to the surface it was obtained by sinking shallow open pits without galleries.

There has been much controversy, especially in this country, over the age of the flint mines, and their cultural connexions. In discussing these questions we shall be compelled owing to lack of space to confine ourselves to the British mines. The view that the flint mining industry as a whole was of Palaeolithic date has little support today, and need not be considered here. It should, however, be remembered that when the hypothesis was formulated little was known of our Neolithic cultures, and it is indeed in the light of the new evidence gained from the

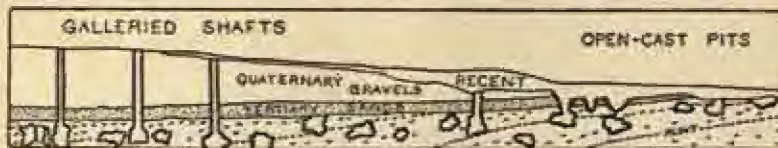


Fig. 3. SPIENNES SECTION (after Cornet, Belart and De Lathuyt)

excavation of the Neolithic camps and from the correlation of Neolithic pottery-finds that we are able to re-examine the problem. Apart from the inherent unsoundness of comparing selected specimens from the debris of a mining and factory industry with the finished pieces of earlier times, there were always certain fully recognized difficulties to the acceptance of the theory. Not least important of these were the unequivocally late character of the faunal⁵ and molluscan remains,⁶ and the discovery by Canon Greenwell some four feet inside the gallery of a shaft at Grimes Graves of a ground basalt axe (fig. 4) signs of the use of which had been noted on the chalk walls.⁷ It is, however, our

⁵ Whereas no single species of exclusively Pleistocene age was obtained from Grimes Graves during the 1914 excavations such a recent species as the sheep was identified by Dr Andrews, F.R.S. *Report on excavations at Grimes Graves, 1914*, pp. 218-9.

⁶ In their report on the mollusca found at Grimes Graves during the 1914 excavations Messrs Kennard and Woodward drily remark, p. 231: 'It has been suggested that these excavations are of "Cave Age," i.e., late Pleistocene, but the zone fossils of that period are well-known, and are all absent'.

⁷ W. Greenwell, *J. Ethn. Soc. of London*, ser. 2, vol. II, 429; also A. L. Armstrong, *P.P.S.E.A.* v, 99.

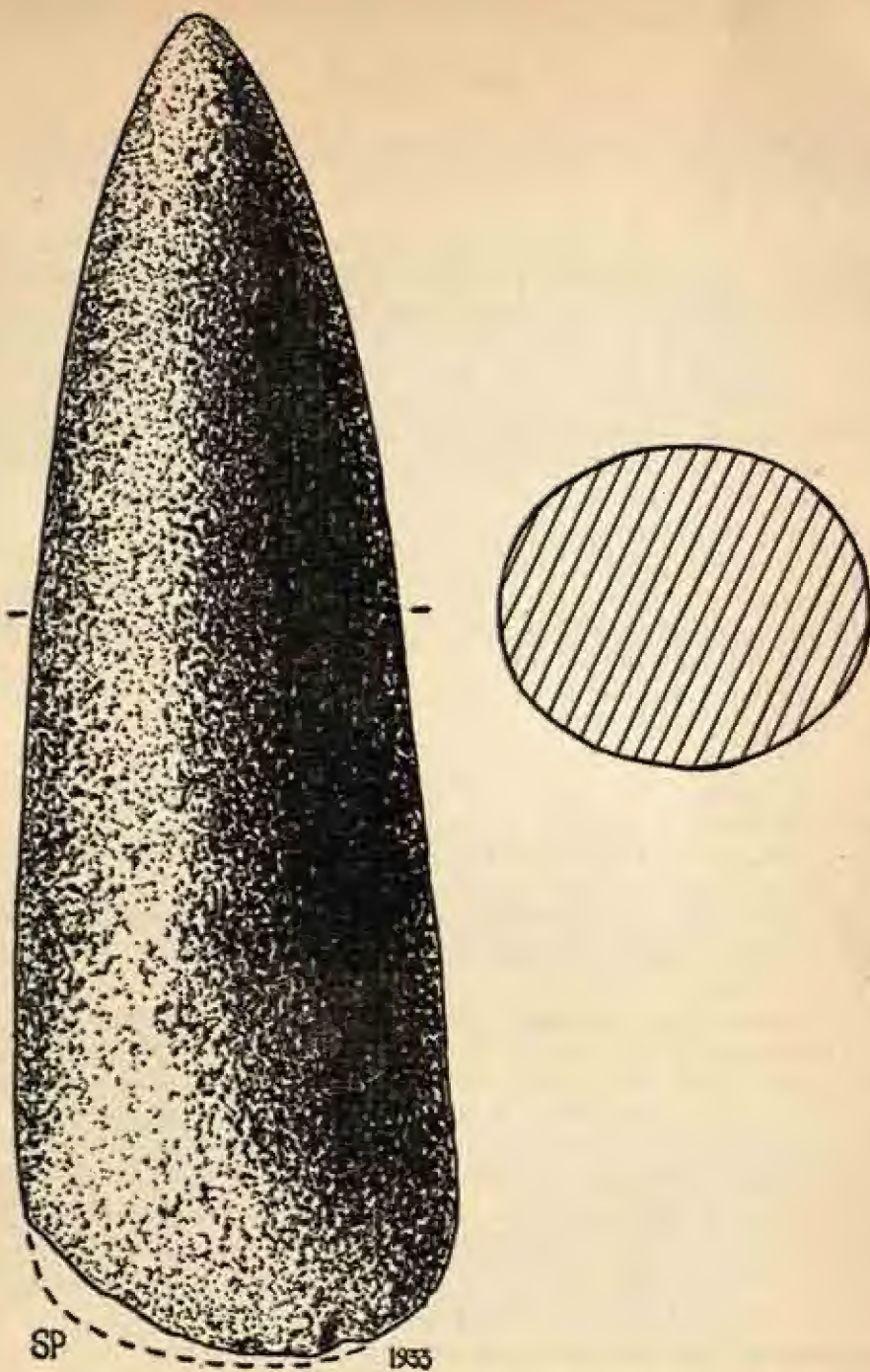


Fig. 4. BASALT AXE FROM GALLERY OF GREENWELL'S PIT, GRIMES GRAVES (1)
(British Museum)

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intention to pass these by and see what we can learn by applying our new knowledge of Neolithic cultures to the archaeological material from the English mines.

A type of carved chalk object, the so-called chalk cup or lamp, has frequently been found in English flint mines, Greenwell obtaining four from his shaft at Grimes Graves⁸ (for one of these fig. 5, no. 3); another was obtained from pit 1 of the 1914 excavations at Grimes Graves⁹ (4), and earlier Tindall had found one at Cissbury¹⁰ (1). It is of great interest that the Neolithic camps and they alone have yielded precisely similar objects, three examples coming from the Neolithic occupation layer at the Trundle¹¹ (2, 5 and 7), one from Whitehawk Camp¹² (6) and two fragmentary examples from Windmill Hill (one, no. 12651, from cutting 1 c, layer 3 at 2.5': the other from the same cutting in layer 1 at 0-1') to which we make reference by courtesy of Mr Alexander Keiller, F.S.A. The use of these objects is disputed, but their value as links between the galleried flint mines and the Neolithic camps cannot well be denied.

Of great value for dating purposes is the pottery yielded by the flint mines and this will be described in detail from each site:

1. CISSBURY.—At a depth of 13 feet in the large pit Col. A. Lane-Fox discovered a few sherds of pottery; three are in the Pitt-Rivers Museum at Oxford, one in the British Museum. Of these four sherds three are small fragments of coarse ware, reddish buff in colour and averaging 1 cm. thick, with large flint grits in the paste. There is nothing very characteristic about these, but they compare well in texture with Neolithic pottery of the Windmill Hill class from the Trundle and elsewhere.

The remaining fragment¹³ however is of first-class importance, and constitutes nearly one quarter of the upper part of a small bowl of a well known Windmill Hill type. As the restored drawing (fig. 6) shows, it is a wide-mouthed vessel 8½ inches (21.5 cms.) in diameter at the rim, which is slightly moulded, and the everted neck joins the lower part with a marked shoulder 2 inches (5.5 cms.) below the rim. The walls

⁸ W. Greenwell, *op. cit.* p. 430, and pl. xxx, fig. 2.

⁹ R. A. Smith, *Report, Excavations at Grimes Graves*, 1914, p. 211, and fig. 81.

¹⁰ R. A. Smith, *Archaeologia*, LXIII, 121, and fig. 17.

¹¹ E. C. Curwen, *Sussex A.S.C.* LXX, pl. xvi, nos. 176-7; LXXII, pl. xiii, no. 37.

¹² R. P. R. Williamson, *Sussex A.S.C.* LXXI, pl. xvi, no. 1.

¹³ At Oxford. It is inadequately illustrated in *J.R.A.I.* vol. v, pl. xviii, fig. 8.

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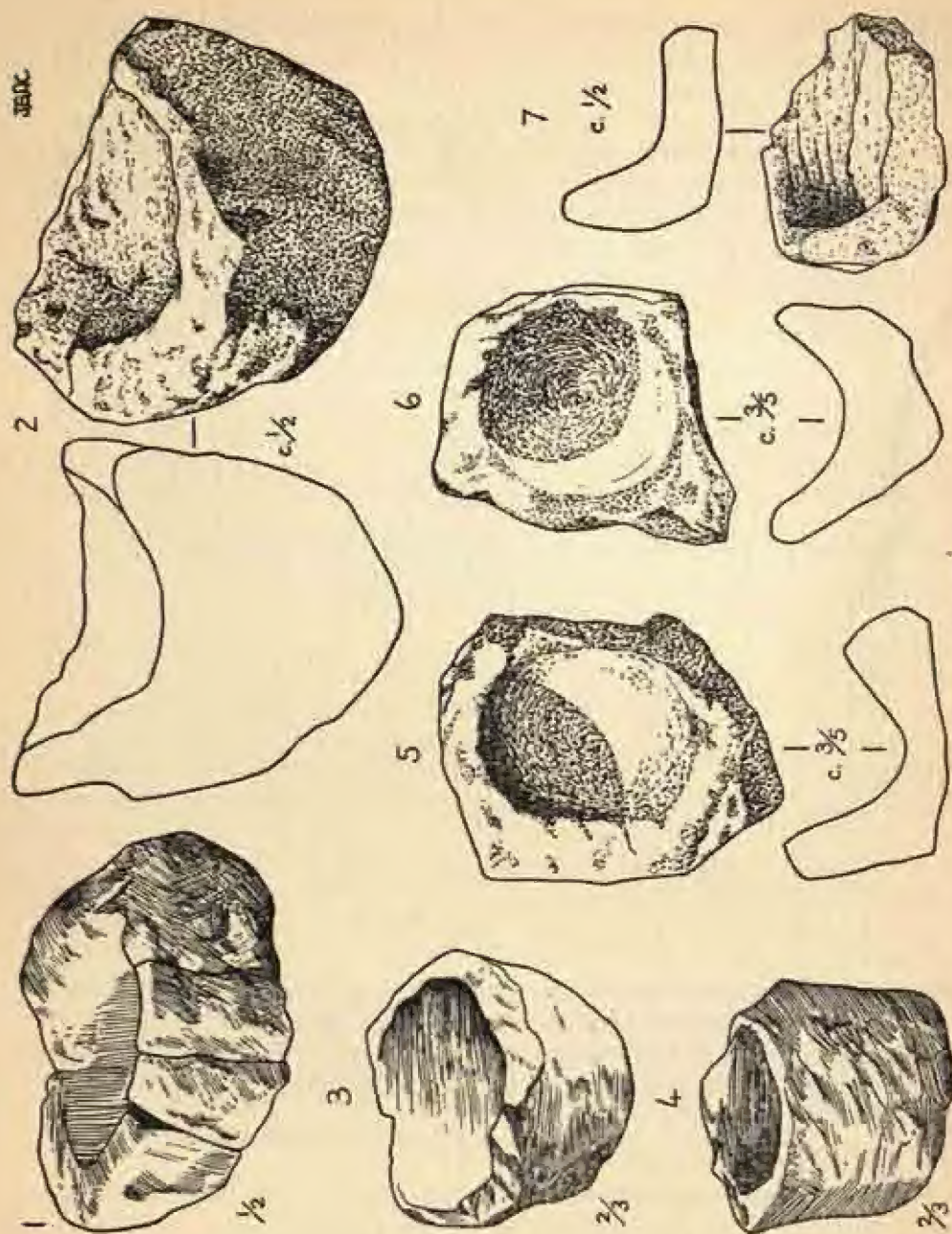


Fig. 5. CHALK CUPS

1, (Chisbury after B.M. Guide). 2, 3, 7, Trundle (after Curwen). 3, 4, Grimes Graves (after Greenwell and 1914 Report). 5, Wainshaw (after Williamson). 6, 3, 4, British Museum; 2, 5, 7, Leamington Museum; 6, Brighton Museum.

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are thin and the ware very fine and hard with frequent small flint grits. The interior is black, the exterior pale brown, and both surfaces are well smoothed—in fact almost burnished.

The pot is an excellent example of a form of Windmill Hill ware—form G—which has a wide distribution in Britain and seems to belong to the second (A2) phase of the culture. Close parallels to both form and texture can be cited locally from Whitehawk Camp, Brighton,¹⁴ and the type is well-known in northern England, being represented for

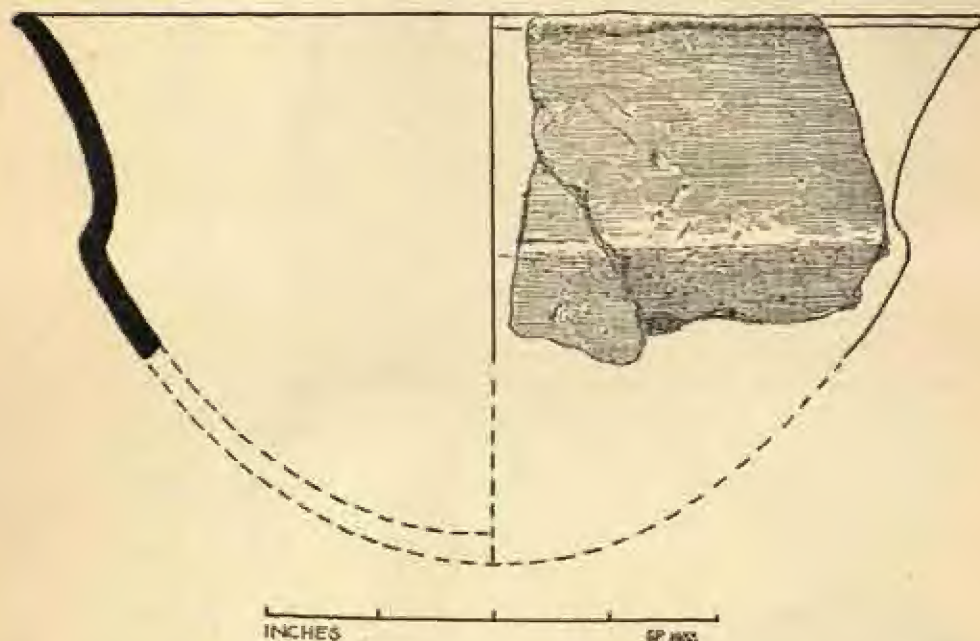


Fig. 6. BOWL OF WINDMILL HILL WARE, CISSBURY FLINT MINES
(Pitt-Rivers Museum, Oxford)

instance by the famous bowls from the Hanging Grimston long barrow, East Riding of Yorks.¹⁵ The general type, although with less marked carination, occurs in the Michelsburg Neolithic culture of the continent, which appears to be parental or at all events closely allied to our Windmill Hill complex.¹⁶

¹⁴ *Sussex A.S.C.* LXXI, p. 57ff, nos. 20, 21, 23, 30.

¹⁵ J. R. Mortimer, *Forty Years' Researches*, pp. 102-5; and S. Piggott, *Arch. J.* LXXXVIII, 99.

¹⁶ See e.g. bowls from Spiennes, V. G. Childe, *Arch. J.* LXXXVIII, pl. 1, opp. p. 46.

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2. GRIMES GRAVES.—The interpretation of the numerous sherds found in the 1913 excavations of pits 1 and 2 is not easy. The twenty groups of pottery in the British Museum can however be divided into two classes on the criterion of paste and texture alone. The first (class I) comprises sherds of good, hard, well-baked wares, either greyish or pinkish-brown in colour with little flint grit. The second (class II) consists of fragments of soft, poorly baked chocolate brown ware, with fairly plentiful grit. Of these two classes of ware, class I occurs in both pits and is represented by seven groups; class II occurs only in pit 2, where it predominates (13 groups).

Turning now to questions of forms, the rim types of class I are exclusively simple and slightly inbent, and in one instance (pit 1, 27 feet deep), a large sherd remains which shows the original form of a small vessel, $5\frac{3}{4}$ inches (14.5 cms.) diameter at the mouth and probably round based (fig. 7a). Fragments of flat bases of thin ware of class I occur however in both pits (fig. 7c). No decoration occurs on any class I sherds.

Of the class II 'chocolate' ware, the sherds are generally speaking much more fragmentary than those of class I, but one fragment survives of an inbent rim similar to class I forms (pit 2, gallery 7). But the most remarkable vessel in this class is the shallow saucer, possibly a lamp, $6\frac{1}{2}$ inches (16.5 cms.) diameter, represented by fragments from pit 2, gallery 7 (fig. 7b), and decorated on the top of the rim and below with impressed cord ornament. Some small and very disintegrated 'crumbs' may represent a second vessel with cord decoration only on the top of the rim (pit 2, layer 5). Another sherd (pit 2, gallery 5) shows the side of a pot just above its junction with a flat base.

These two pottery types imply a mixture of cultures. Both texture and form indicate that our class I belongs to the Windmill Hill group of Neolithic pottery, but the occurrence of cord decoration on class II places it in another category, as such ornament is completely unknown in Windmill Hill ware and suggests the group of British Neolithic pottery in which cord ornament is common—Peterborough ware. The West Kennet long barrow has, indeed, furnished an almost exact parallel to the cord-ornamented saucer.¹⁷

So far we have confined our attention to the galleried flint mines without considering any possibly earlier phase of mining. Whereas

¹⁷ Mrs Cunningham, *Pottery from the Long Barrow at West Kennet*, pl. 1, no. 4.

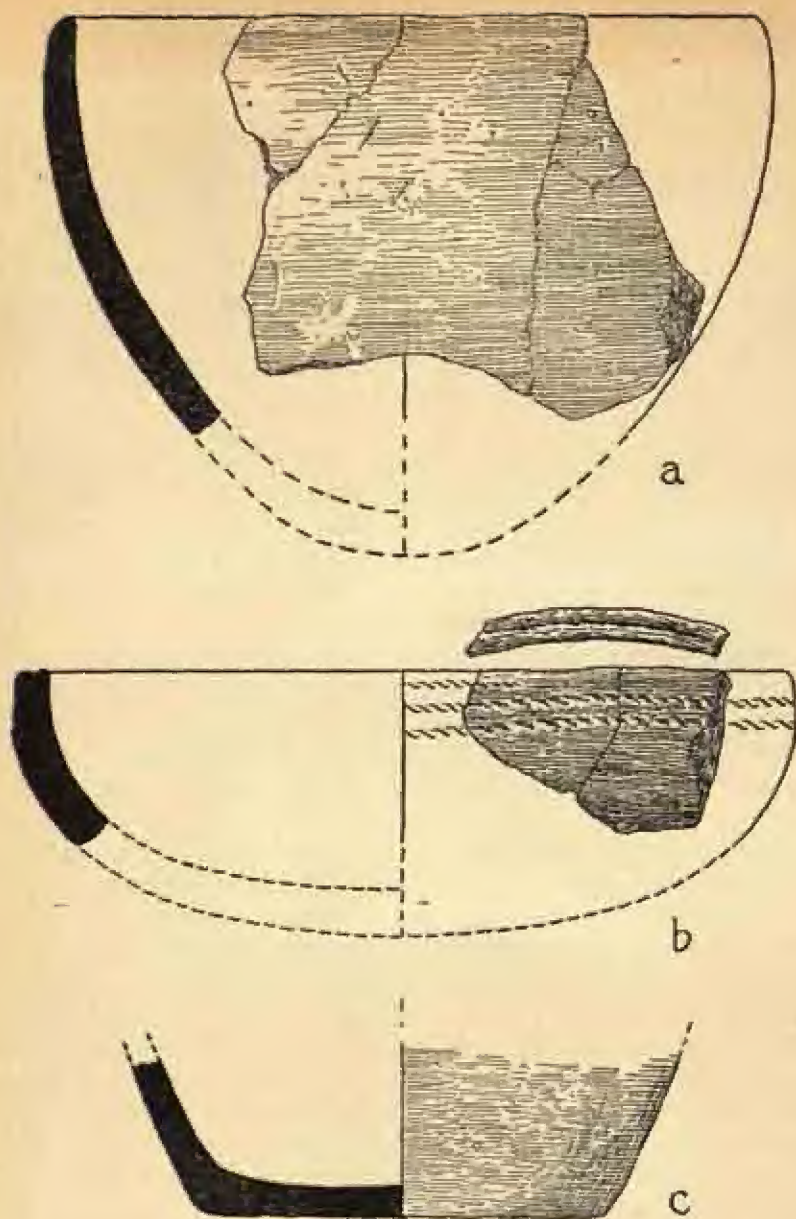


Fig. 2. POTTERY FROM GRIMES GRAVES, VITS 1 AND 2
(British Museum)



INTERIOR OF A GALLERY AT SPINNIES, SHOWING COLUMNS OF CHALK LEFT TO SUPPORT THE ROOF

A mass of flint is visible below the roof of the gallery

Gift by permission of Misses Royaux d'Art et d'Antiquité Bruxelles

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the hypothesis that the whole mining industry was of Palaeolithic age is now generally abandoned, the theory elaborated from researches at Grimes Graves that the industry continued from Palaeolithic into later times, passing through a number of phases, still has some adherents. The three main phases of mining which are alleged to have succeeded one another at Grimes Graves are connected with three types of mine :

- (1) PRIMITIVE or bell-shaped pits, *e.g.*, pits 3 and 4.¹⁸
- (2) INTERMEDIATE or 'masked' pits with coves at base, *e.g.*, pits 8-12.¹⁹
- (3) GALLERIED pits, *e.g.*, pits 1 and 2.²⁰

An additional phase has to be pre-supposed to account for certain chipping floors, notably floor 85c, which is alleged to be earlier than any of the mining phases at present recognized.²¹

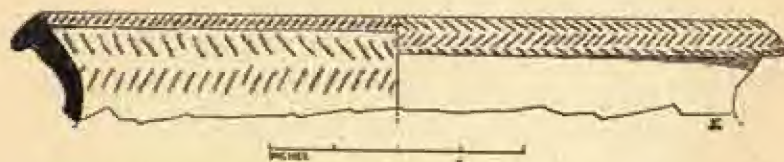


Fig. 8. RIM OF PETERBOROUGH WARE BOWL FROM PIT 12, GRIMES GRAVES

The Galleried Pits we have already shown to be of Neolithic date, and we shall now show from the evidence published by their discoverer that each of the 'earlier' phases belong in reality to substantially the same period.

Thus :

- (i) From a floor resting immediately on the 'chalk filling of the shaft of a typical Intermediate Pit (no. 12), a considerable amount of typical Peterborough ware with cord and 'bird-bone' ornament has recently been excavated. We illustrate (fig. 8), a restored drawing from the sherd already published by its discoverer.²² It is a rim fragment of a bowl decorated with whipped and twisted cord impressions.

¹⁸ A. L. Armstrong, *P.P.S.E.A.* IV, p. 113, and p. 182 ; V, p. 101.

¹⁹ *Ibid.* V, p. 103 ; VII, p. 57.

²⁰ *Ibid.* V, p. 123. See also *Report on Excavations at Grimes Graves*, 1914.

²¹ *Ibid.* III, p. 552. ²² *Ibid.* VII, pl. IV, fig. 3.

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- (ii) From a depth of eleven feet in the filling of a typical Primitive Pit we can show the fine chalk cup or lamp illustrated by fig. 9.²² As mentioned earlier this type has been found frequently in galleried flint mines, in Neolithic camps, and nowhere else.

We have shown that all three mining 'phases' represented by the different types of pit at Grimes Graves appear on the evidence of associated finds to be of Neolithic age. There are, however, certain chipping floors which have been claimed as earlier than any of the mining pits as yet found. Of these the most famous, owing to the



Fig. 9. CHALK CUP OR LAMP FROM PIT IV, GRIMES GRAVES $\frac{1}{2}$ (after Armstrong)

engraving which it yielded and also to its stratigraphy, is floor 85. From 85c, the lowest of three floors, 'each sealed and separated by sterile layers of humus and closely compacted chalk rubble',²⁴ 'several fragments of pottery forming portions of the base and side of a vase' were obtained.²⁵ In the original report published in 1921 the discoverer told us that this pottery was 'identical with that discovered in the pits excavated in 1914'.²⁶ With the emergence of the theory of mining phases extending from Palaeolithic to Neolithic times, however, this pottery faded into oblivion, until its evidential significance was pointed out by one of the present writers.²⁷ For the purpose of this paper we have re-examined the pottery, which consists of three small undecorated

²² *Ibid.* IV, p. 122, and fig. 6. ²⁴ *Ibid.* III, p. 548. ²⁵ *Ibid.* III, p. 441.

²⁶ *Ibid.* III, p. 441. ²⁷ J. G. D. Clark, *Mesolithic Age in Britain*, p. 112.

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fragments, but we feel unable to commit ourselves either as to its age or its affinities.²⁸ The sherds certainly do not resemble in texture or any other respect those from pits 1 and 2. Apart from this somewhat unsatisfactory pottery, floor 85c yielded the best of the engravings or drawings on flint-crust and a number of flint implements. The browsing animal depicted has been regarded by L'abbé Breuil as a red deer,²⁹ while Burkitt and Kendrick have compared the technique of its execution with the Arctic art style.³⁰ On the other hand efforts have been made to compare it with the cave art, in which case the beast is identified as an elk.³¹ As to the affinities of the associated flints it is interesting that whereas in 1921³² their discoverer stated that 'the style of work and type of implement is distinctly Mousterian in character', by 1922³³ it had become 'distinctly Palaeolithic, Mousterian in tradition, but favouring a position about that of Abri Audi', while by 1926³⁴ it was merely of 'Upper Palaeolithic facies'. It would be possible to correlate this progressive rejuvenation with a dawning realization on the part of the discoverer of the glaring anachronism involved in the association of naturalistic art, of typologically quite an advanced character, with flints of 'recognized Mousterian types'! For our own part we are prepared to keep an open mind on the subject of a possibly earlier phase of mining at Grimes Graves,³⁵ but evidence of this quality does not convince us.

²⁸ The sherds show no characters sufficient to date them conclusively, though Mr Christopher Hawkes, F.S.A., says they might quite well be Hallstatt. If this is so they must clearly be intrusive—in spite of the 'sealed' character of the deposit.

²⁹ A. L. Armstrong, *P.P.S.E.A.* III, p. 440.

³⁰ M. C. Burkitt, *Our Early Ancestors*, p. 174; T. D. Kendrick, *The Axe Age*, p. 164.

³¹ A. L. Armstrong, *P.P.S.E.A.* III, pp. 439-40.

³² *Ibid.* p. 438. 'The style of work and type of implement is *distinctly Mousterian* in character, large Levallois flakes and flake implements of Northfleet type predominating'.

³³ *Ibid.* p. 557. 'The general facies of the implements is distinctly Palaeolithic, Mousterian in tradition, but *favouring a position about that of Abri Audi*'. N.B.—It may be explained that Abri Audi shows a transition from Late Mousterian to Early Aurignacian, and is probably to be accounted for by the influence of the incoming upon the established culture.

³⁴ A. L. Armstrong, *P.P.S.E.A.* v, pp. 99-100. 'The presence on the lowest floor of Naturalistic drawings of animals, in association with finished artifacts of *Upper Palaeolithic facies*'.

³⁵ One of us has drawn attention to the Campignian traits to be seen in the flints of the mining industries (*The Mesolithic Age in Britain*, pp. 113-14). But this may have no more chronological significance than the well-known occurrence of Lower and Middle Palaeolithic forms. In any case we have no convincing evidence that any of our English mines were exploited before Windmill Hill times.

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It might be observed that the floor yielded no exclusively Pleistocene fauna,³⁶ while there is no detailed record of mollusca, such as proved so damning in the 1914 Report.

The evidence for a sequence from Palaeolithic to Neolithic in the Grimes Graves mining has been shown to be valueless on its own

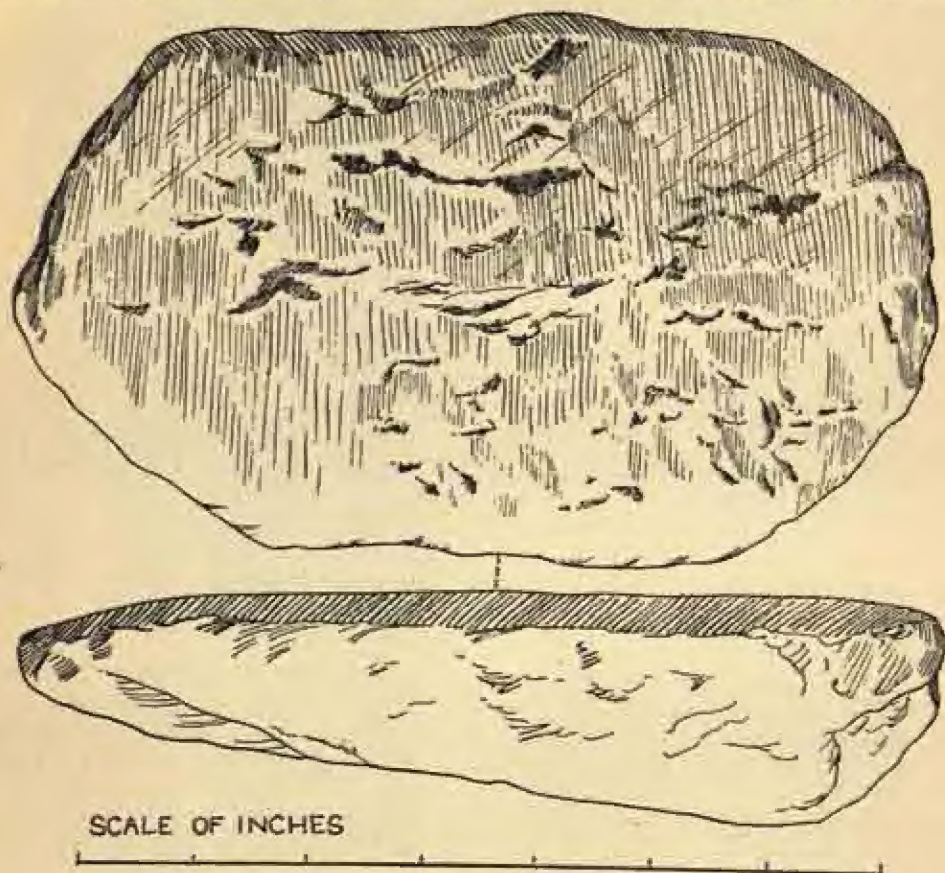


Fig. 20. TOP-STONE OF SADDLE QUERN, STOKE DOWN (after Wade)
(Brighton Museum)

ground. If we test out the pit-typology elsewhere we find it equally at fault. Thus according to definition there is no doubt that the Easton Down pits,³⁷ showing merely a belling at the base and no galleries,

³⁶ Only horse and red deer were obtained. See *P.P.S.E.A.* II, 557.

³⁷ Dr J. F. S. Stone, *Wilts. A.M.* XLV, p. 35off.

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should be considered as 'primitive'. Here three small abraded fragments of pottery identical with the Windmill Hill type sherds from the adjoining settlement were obtained from the shelly layer of pit 47.³⁸ In passing we may mention for the benefit of the typologist that a flint, described by Reid Moir as 'combining the attributes of a rostro-carinate and of an early hand-axe',³⁹ was nevertheless obtained from floor 7 which overlay the shelly layer of pit 47. Or again the Stoke Down mines, none of which showed galleries, but which showed either coves at the base or no enlargement whatever and might in many cases have passed for pits of 'intermediate' type, yielded at seven feet in the undisturbed filling of pit 2 the top-stone of a greensand saddle quern⁴⁰ (fig. 10).

The plain fact is that the different forms of pit reflect different conditions at least as much as differences in time. In any case we have shown that if there is a sequence at Grimes Graves it seems to have taken place in one cultural period. In flint mining, as in any other, two factors are predominant—safety in working and economy in the extraction of the raw material. The importance of the first is brought home to us by the fate of the wretched miner of Obourg whose skeleton was found crushed with an antler pick still grasped in the hand.⁴¹ The chalk at this site was full of fissures and was weakened by the inclusion of sand pockets, and the workings were almost entirely of an open character for this reason. One of the few pieces of gallery-making seen at the site and designed to link up two open workings resulted in the fatality above mentioned. Geological reasons were also responsible for the 'primitive' form of the pits at the French mines at La Petite-Garenne and Les Martins. It is interesting that at the former site workmen tried to extract flint for road-metal in 1895 by means of galleries; the 'advanced' method which they employed did not prevent them being killed by a fall.⁴² The excavator of the Easton Down shafts, which as the reader will remember were of 'primitive' character, is of opinion that the condition of the chalk inhibited the driving of galleries.⁴³

³⁸ Advance information from Dr Stone. See forthcoming *Wilts. A.M.*

³⁹ Letter from Reid Moir to J.G.D.C.; this will be quoted at length in Dr Stone's paper.

⁴⁰ Major Wade, *P.P.S.E.A.* iv, 84-6, and fig. 2.

⁴¹ *Report on Excavations at Grimes Graves*, 1914, p. 24.

⁴² A. Favraud, *Rev. anthropologique*, xxi, 130.

⁴³ Dr J. F. S. Stone, *Wilts. A.M.* xlv, 354.

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But this factor of safety is not alone sufficient to explain the non-galleried workings. It may first of all be observed that these workings are notably shallow; both at Easton Down, Stoke Down and at Grimes Graves along the slope of the valley to the north and west of the main mining area the coveted flint is to be found at a depth of no more than three or four metres. Now it should be clear that in such circumstances the driving of galleries would be less economic than the sinking of new shafts; only in cases where a considerable amount of 'dead work' was necessitated by the depth of the floorstone would extensive galleries become worth while. The famous Spiennes section illustrates this very clearly, galleried pits being sunk when the good flint was deep, and open pits where it was shallow. A feature of ungalleried shafts which should be of interest to the field-worker is the almost entire absence of surface indications often shown by them. This feature has been regarded at Grimes Graves as a criterion of age, but it exists equally at Stoke Down, the surface of which mine-field was described by its excavator as being 'as smooth as many croquet grounds'.⁴⁴ The connexion between marked surface indications and extensive underground workings, no less than the relative absence thereof in both cases, appears to be more a matter of common sense than of chronological significance.

In conclusion we may say that in our view all the evidence points to a Neolithic date for the main flint-mining activity in Britain,⁴⁵ no earlier phase having been satisfactorily demonstrated. Its inception seems indeed to be linked with the Windmill Hill culture, and perhaps the most interesting point clearly brought out by the pottery from Grimes Graves is the fusion of cultures—Windmill Hill and Peterborough—which we associate with the fact that the flint mines supplied a common need and were probably centres of trade. At Easton Down a similar mixture is being demonstrated in the large settlement which surrounds the mining area, with the additional fact that here the Beaker people, attracted as they were all over Europe to scenes of exploitation, settled on the site of the flint mines.

⁴⁴ Major Wade, *P.P.S.E.A.* iv, 83-4.

⁴⁵ It is not without significance that in their report on mollusca from Whitehawk Neolithic camp (*Sussex A.S.C.* LXXI, 84-5), Messrs. A. S. Kennard and B. B. Woodward, who examined the Grimes Graves material from the 1914 excavations, state: 'The evidence thus obtained from Whitehawk Camp is in strict agreement with the facts furnished by Blackpatch, Harrow Hill and the Trundle (Sussex), Windmill Hill (Avebury, Wilts.), Grimes Graves (Norfolk) . . .'.

THE AGE OF THE BRITISH FLINT MINES

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*We are afraid we cannot recommend a recent publication on this important site (J. H. Pull, *Flint miners of Blackpatch*, Williams and Norgate, 1932). While we recognize that the suit must have yielded most valuable evidence it is presented so unscientifically that we cannot utilize it.

The Guilloche

by ALLEN W. SEABY

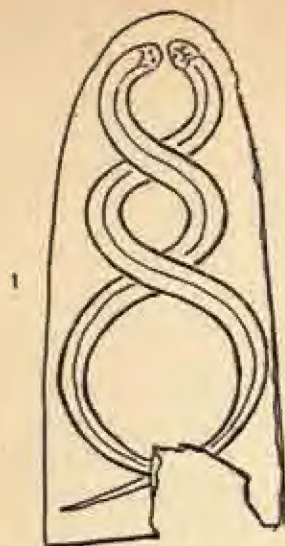
Professor of Art, Reading University

ANY child provided with his first pair of compasses essays a row of tangential circles: if he adds a second row touching the first and maybe a third row, he has constructed the geometric basis of the classical Guilloche. The term is sometimes used to cover not only circular bands but crossing ones as well, and interlaced ornament generally.

While the engravers of La Madeleine were working on their bones, and the women sewing skins together with their bone needles, in Egypt and Western Asia the decorative arts were being perfected. Fig. 1 is a sketch of a motive on the gold-foil covering of a flint knife from a grave of the predynastic period. In Elam this can be matched on a seal with a pair of lions, 'sejant rampant regardant', their tails intertwined (fig. 2). A non-representational treatment is seen on an early Sumerian votive plaque (fig. 3). Disregarding its symbolic content, the strictly geometric construction may be noted. This 'twist', as a single row of circular bands is termed here, occurs in Cretan art of the 16th century B.C., and later, in Assyrian art. It may be surmised that, with other motives, as the rosette, lotus and palmette (but not the fret), the twist was handed on to the Greeks from the East. It reached Scandinavia, where it is found on hanging bowls, and is seen inlaid in coral at the base of the Gaulish flagon in the British Museum. The lip of that vessel bears a very rare variety of the twist, an angular one.

The true guilloche, of more than one row of circles, appears early in Greek art. Among many examples of the single twist painted on the Rhodian pots, one comes upon an occasional example of a double row (fig. 4). In the triple-row form it occurs on the handles of proto-Corinthian vases (fig. 5), on the Daphnae ware and on early Etruscan sarcophagi. Search among archaic Greek buildings might discover it as carved or painted ornament. It does not appear, however, on any fragment of the earlier temple at Ephesus on view in the British Museum. Examples, finely carved, occur on the bases and capitals of the columns of the Erechtheion (fig. 6).

At this point it might be noted that in architectural manuals and other works aiming at a high standard of accuracy, drawings of the classical guilloche not seldom betray a strange misreading of the forms, the tangential circular bands being transformed by the copyist into a



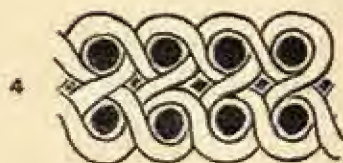
Snake-motive on the gold-foil covering of a knife-handle (predynastic)



From votive plaque (Sumerian)



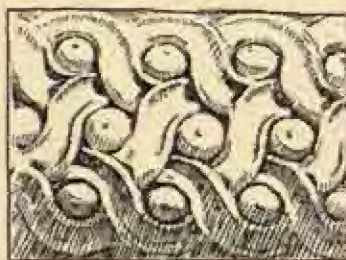
From seal (Susa II)



Painted ornament from Rhodian vase



Proto-Corinthian vase



From base of column of Erechtheion



From Rhodian vase

FIGS. 1-7

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straight-lined plait ! As regards the Erechtheion guilloche, which has suffered much bad illustration, scrutiny of the originals in the British Museum shows how the error may have arisen, for the weathering of the moulding has caused the curved bands, at a first glance, to appear straight ; but if those parts less exposed are examined, it becomes clear that the bands were originally circular. The excuse cannot be made for errors in copies of *painted* ornament, and a triple-row guilloche of tangential circular bands on a proto-Corinthian pot, figured as a straight-lined plait in a journal devoted to Greek archaeology, has misled at least one writer on plaited design. There are two sources of error besides that mentioned above : (1) the misreading of the original by a copyist unversed in the archaeology of the subject, and (2) irregularity of form in the original, caused by the old-time craftsman's haste or lack of skill. On Greek pots, for instance, where the painter has, perforce, to work freehand, the circular bands of his guilloche tend to fall short of geometrical accuracy. The guilloche in figure 4 suggests a straight-lined plait, yet the painter was evidently familiar with the correct form although incompetent to reproduce it. Again, a first glance at fig. 7 might cause one to rejoice at finding the duplex, emblem of good omen, appearing so early ; the motive is plainly a guilloche of four circles, but owing to bad drawing it is on the way to the duplex of later times (fig. 8). One is reminded of the fret border on Greek pots. Even on the finest the ' keys ' are executed in a slovenly manner, being indeed difficult to draw with the brush. All this should lead to caution in accepting statements that plaited and knotted ornament appeared in quite early times, backed up by drawings the original source of which it is difficult to check. Judging by available examples, the writer ventures to affirm that no straight-lined plaited ornament appeared in Europe say before A.D. 100. It may, of course, seem strange that the plait should be slow in making its appearance among ornamental motives, for hair has doubtless been plaited since the days of the cave people. The fine bronze Zeus* (or Poseidon) recovered from the sea at Artemision in 1928, wears his long hair in a three-cord plait. However, it is much easier to plait than to draw the result freehand. It might be noted that the three-cord plait can be drawn with curves only, but if the plait is of four or more cords, or if, instead of a border the whole space is plaited, straight lines are necessarily predominant. The circular guilloche, too, may have its rows repeated to cover a

* ANTIQUITY, 1930, IV, 412, and plate facing 409.



8

From Roman mosaic



9

Three cord plait from
Roman mosaic



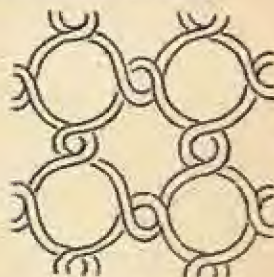
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Woodcarving from Oseberg ship



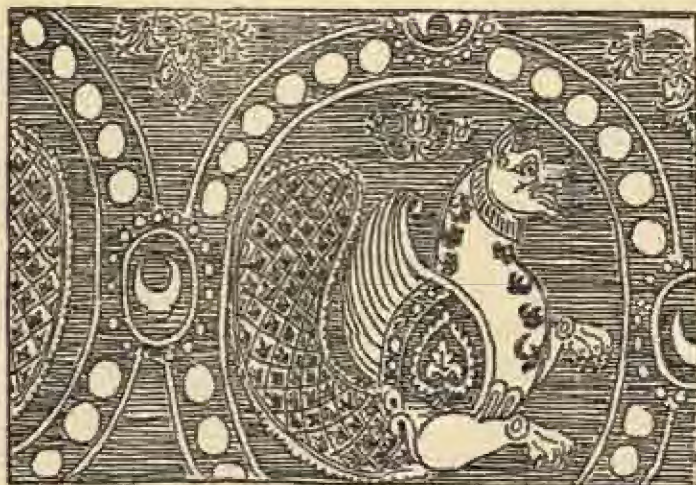
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Part of a tapestry roundel from Akmsh



13

Finishing of Byzantine silk



12

Samian brocade (South Kensington)

FIGS. 8-13

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surface, as on some small plates of metal from Sparta, dated to the late 7th century B.C.

The appearance of the plait, as distinct from the guilloche, on Roman mosaics, coincided with some decay of classical tradition. The craftsmen among the hordes of Dacian and other slaves set to work on the pavements, cast a barbaric eye on the guilloche borders they were ordered to reproduce and in their fingers the circular bands changed into straight-lined plaits (fig. 9). This need not be considered as necessarily degeneration. To craftsmen used to basketry, plaiting of leather or rush mats, the change from curve to straight line may have been instinctive. The arrival of the plait is, however, only the first stage of the metamorphosis of the guilloche. When and where the 'breaks' in the plait, which produced such delightful meanderings in illuminated manuscripts, silver work and stone carving, were first introduced is hard to settle. While Roman pavements were still being laid down, in Egypt the Christianized natives were producing designs which, at first sight, seem to solve the problem. The tapestry stuffs found in the tombs of Akmin are patterned with tangential curves, obviously variations of the guilloche theme, but so ingeniously varied and the straps so consistently disposed 'over and under' that the work seems to point directly to the interlaced ornament of the 'dark ages' (fig. 10). However, there is a gap of several hundred years between them, and when the latter style appears it resembles much more closely the mosaic border plait.

Early Byzantine ornament made use of the guilloche, rather on Akmin lines, consisting in circular bands running tangentially with other straight and curved ones, an arrangement curiously like Elizabethan strapwork many hundreds of years later. There are panels of such ornament let into the walls of the tiny Metropolitan or cathedral of Athens, as if they had come from a still older building. Sometimes the Byzantine treatment of the guilloche produced crosses composed of large and small circles. There is an example of this in *ANTIQUITY*, vol. VI, pl. VI (p. 288). The writers of the article in which it occurs speak of the 'looped motive' (meaning the guilloche), being 'suggestive of Celtic ornament', but, as has often been pointed out, 'looped' or interlaced work is not the characteristic feature of Celtic art, which originated a thousand years earlier than the Teutonic interlace. The later, Christian, Celtic designers absorbed the plaits and other motives drifting through Europe, and they possessed a command of geometrical planning, never-failing ingenuity in making 'breaks' and impeccable

THE GUILLOCHE

accuracy, that made possible the impressive pages of ornament in the Durham Book, and the intricate elegance of the 'Tara' brooch.

This inquiry commenced with the intertwining of snakes and lions' tails. During the 'dark ages', alongside the pure interlaced ornament and occupying as much or more of the designers' energies, again appeared the interlacing of animal forms, although in a free rather than formal way. To find the origin of the animal in question one must search backwards through Visi-Gothic, Roman, Greek, Scythian, to arrive at ancient Asian art for the motive common to all—the lion. In the hands of the smiths of the Teutonic migrations, the lion motive lost its realism, even its body becoming a mere assemblage of writhing limbs and gaping jaws, forms equally useful in filling a space or making up a border. During the 7th century this disintegrated creature pulled itself together, the motive becoming a whole beast again, but a grotesque and impossible one—its head, limbs and tail twisted all ways, although the intertwining of its members was as consistent as the strands of the regular plait. We see this style at its most intricate in the Book of Kells and other illumination of the period. However, the most redoubtable school of animal interlacing was the Scandinavian. When the intertwined beast was abandoned by the rest of Europe for Christian emblems as vine scrolls and trees of life, in Scandinavia, still pagan, it was continued, and developed in complexity, until the animal almost disappeared in wayward interlacings. This, the Vendel style, was unknown to the rest of Europe. Some time before A.D. 800, another style appeared alongside the Vendel. It was strangely different in character, for instead of flat relief, the forms were deeply cut (fig. 11). In this 'gripping-beast' style, the spaces, whether metal or wood, are continuously covered with gripping claws and strange mask-like faces, but the design is all the same under geometric control. It is not necessary to enter into the story of the figured silks, in which Sasanian, Byzantine and Chinese art are curiously involved (fig. 12). Specimens of Byzantine brocades, their fields partitioned by guilloches (fig. 13), the compartments filled with lion and other motives, must have reached the north and afforded a new stimulus to the carvers of the Vendel style. On the carved pole from the Oseberg ship, dated about A.D. 800, the maze of forms is steadied by the guilloche in repetition, its last appearance in European art until the Renaissance.

Several of the illustrations in this article are from the author's books on Greek and Roman Art and we are obliged to Messrs B. T. Batsford for lending some of their blocks for this purpose.—EDITOR.

Dolmens of North Caucasia

by A. M. TALLGREN

Professor of Archaeology, University of Helsingfors

THE Caucasus is by no means a homogeneous region. It consists of a very high mountain-chain, the main parts of which reach to a height of over 5000 metres, with others of 1000-1600 metres. Forming an isthmus between two seas, the Asiatic Caspian and the Mediterranean Black Sea, it is open to both eastern and western influence. There is no distinct boundary between its northern part and the endless Eurasiatic grasslands, and in the south it is connected with the Armenian and Anatolian highlands. South of the mountain-chain the Caucasus has a Mediterranean climate: vines, rice and tea are cultivated and it is rich in metals. North of the mountain-range also the soil is very fertile, especially in the valley of the Kuban river. There, in the northeast corner of the Euxine, prehistoric culture flourished very early and reached a high level.¹ I shall here give an outline sketch of its character, and especially of the so-called Kuban culture of the Early Bronze Age, which takes its name from the Kuban river. This river flows into the Black Sea, but its upper course lies in the high mountains not far from the Elbruz. It has many tributaries, especially on the left, the Caucasian, side. Among these the Laba, the Belaya and the Abin may be mentioned.

In this part of the Caucasus monumental stone tombs or burial-chambers—the so-called dolmens—are met with in considerable numbers (about 1500). They have long been known in scientific literature and both Russian and foreign investigators who have dealt with Caucasian archaeology have given descriptions of them, but these are far from complete. Among the best known west-European works may be mentioned Chantre's *Recherches Anthropologiques*. Of Russian literature on the subject I may mention only the valuable series *Materials concerning Caucasian Archaeology* (=MAK), the 9th volume of which deals with the dolmens, but is chiefly of a topographical character.

¹ G.M.I. Rostovtzev, 'L'âge du cuivre dans le Caucase septentrional'. *Revue archéologique*, 1920.

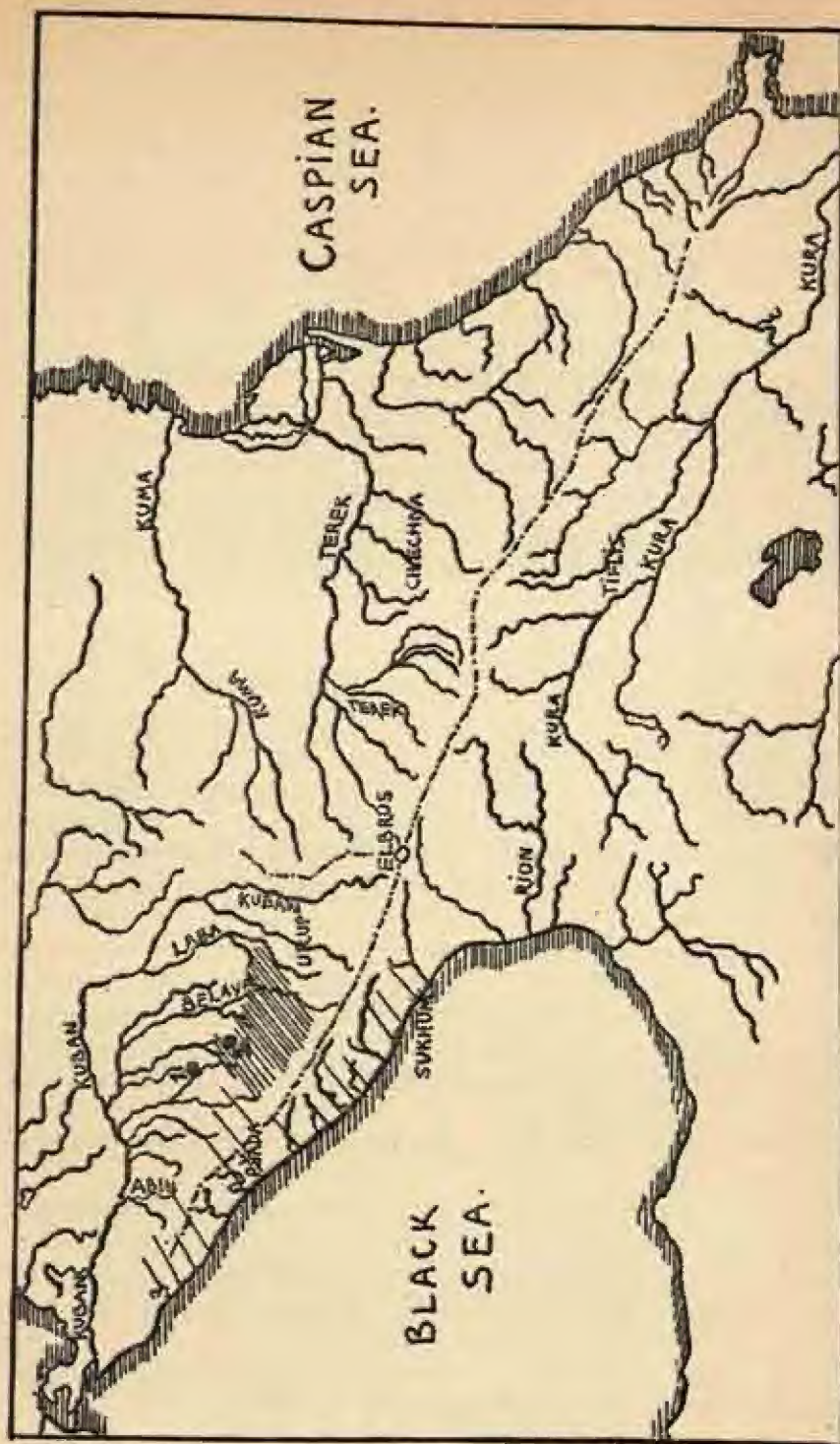


FIG. 1. MAP SHOWING THE AREA OF THE DISTRIBUTION OF THE DOLMENS OF NORTH CAUCASIA

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Real investigations are lacking, and in synthetic studies of megaliths in general the Caucasian dolmens are mostly passed over with a bare mention.²

The area of the distribution of the dolmens is not large (map, fig. 1). It occupies the basin of the western tributaries of the Kuban river between Mount Elbrus and the Black Sea. On the northern slopes of the Caucasus it is limited to the mountain proper, south of the steppes. On the coast of the Black Sea there are about a hundred large, well constructed dolmens. Southwards dolmens are met with in the northern Abkhazia, as far as Sukhum Kale, where they are less frequent. Their centre lies on the Belaya and the Laba in the east: they decrease in number towards the west, but the best examples are situated there, on the Black Sea coast.

The dolmens are stone cists; the early 'chamber-dolmens' and 'gallery-graves' are not met with. These cists are built of well-squared heavy stone slabs which are placed on their edges and fitted together with admirable precision (figs. 2, 6, 7), a gigantic slab forming the capstone. The plan is either quadrangular or trapezoidal (fig. 2). The length of the monolithic wall is 2-3 m., the inside height about 1.5 to 1.6 m. The side-walls and the capstone project somewhat beyond the front and a kind of open passage is thus formed (cf. fig. 2, 4-5). In the front slab there generally occurs a circular (or oval, quadrangular) hole or opening like a window, 30-40 cm. in diameter. This port-hole was often closed by a stone disc or by a mushroom-shaped plug (fig. 7).

Dolmens of a somewhat different construction are also found, in which one or two walls are made of boulders or rough stone blocks, but with the exception of about 10, the main plan is uniform. The construction is, as a rule, remarkably good. The upper edges of the wall-slabs or uprights are sometimes rabbited or grooved to take the covering slab. Everything in the design goes to prove that these dolmens represent a highly developed cultural and architectural phenomenon.

A small class of these dolmens may be mentioned separately. An immense mass of stone, shaped into a long quadrangular block, was hollowed out to form a monolithic box, the lid being one with the sides, the only access to the interior being through a window (fig. 2: 1-2).

² A more detailed description of the Caucasian dolmens will be published in the 9th volume of the *Eurasia Septentrionalis Antiqua* (=ESA) in Helsinki-Helsingfors.

DOLMENS OF NORTH CAUCASIA

In other cases the lid is separate, the bottom and sides being cut out of one block, as in an ordinary sarcophagus (fig. 2: 3-4). The accuracy

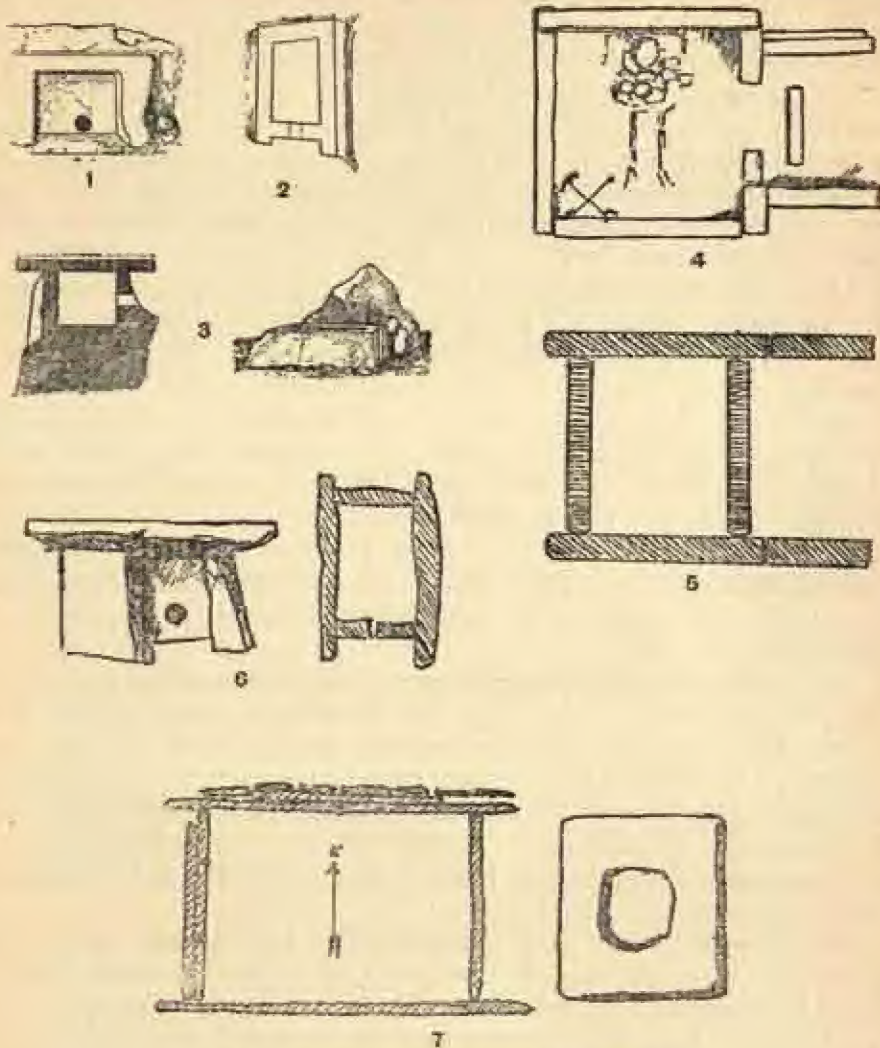


FIG. 2. PLANS AND ELEVATIONS OF DOLMENS
1-4, Eastern Black Sea coast (after Spitsyn). 5, Tsarevskaya, North Caucasus.
6, Rajunkoloor, India (after Montelius). 7, Allstedt, Saxe-Weimar (after Montelius).

with which the ordinary built-up dolmens are fitted together is so perfect that it is not always easy at first glance to detect any difference between

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the cut-out dolmens and those made of five separate dressed slabs. The whole class of dolmens in the western Caucasus is constant and there was certainly no interval of time between the different types which occur. It is not a long evolution, only a difference in skill and accuracy, that is reflected in the various examples of these monuments.

The dolmens often occur in groups of from 200 to 500, but of course there are also more isolated dolmens. They stand, as a rule, on a natural mound or in a burial kurgan, the walls either partly or entirely sunk in the earth (fig. 2). Some are surrounded by a stone circle. As to their orientation, they are generally placed with the 'window' towards the east.

There are engraved ornaments³ on the stone-slabs of about ten of the dolmens. These are situated on the shore of the Black Sea in the extreme western corner of the mountain chain. The designs occur either on the inner walls of the burial-chamber (in two cases) or on the prolonged walls of the open passage, or on the front-edge of the covering slab. Further, cup-shaped hollows are sometimes met with on the capstone. The designs on the walls of the burial-chamber consist of an engraved zig-zag line along either the upper (fig. 3 : 3) or the lower (fig. 3 : 2) borders of the inner walls, forming a straight row, and of hanging bunches of wavy lines (fig. 3 : 3), somewhat resembling carpets or a canopy with which they have been associated. Traces of red colouring matter occur.

The designs in the passage of one of the dolmens (fig. 3 : 1-2, 4) are more complicated. There is a line of triangles with hanging wave-lines, and above can be seen what may be a drawing of the sun. It is possible that the figures here are not merely ornamental in purpose but are intended to depict a landscape with high mountains and flowing rivers—the Abin and its affluents. I shall return to this point later. It may be remarked, that on the head of the stone-plug (from this same dolmen ?) is an engraved circle.

Although there are about 1500 dolmens in Caucasia, only a part of them have yielded finds. Owing to their monumental form the dolmens have at different times been despoiled of their contents. Many are partly filled with earth and stones but it is difficult to say whether this was a primary custom or whether it is due to later damage.

As a rule the burials were made in a sitting posture (fig. 2 : 4), although cases of recumbent skeletons, some in a contracted position,

³ A. Leshchenko, 'Materials concerning the decorations on the Northwest Caucasian dolmens'. *Anthropologia*, IV, 237ff. Kiev, 1930. (In the Ukraine language).

DOLMENS OF NORTH CAUCASIA

are frequent. Single burials are rare; three to four individuals buried in a dolmen seems to be the rule, and communal burial is also known. Not only human, but also animal bones are to be found, especially

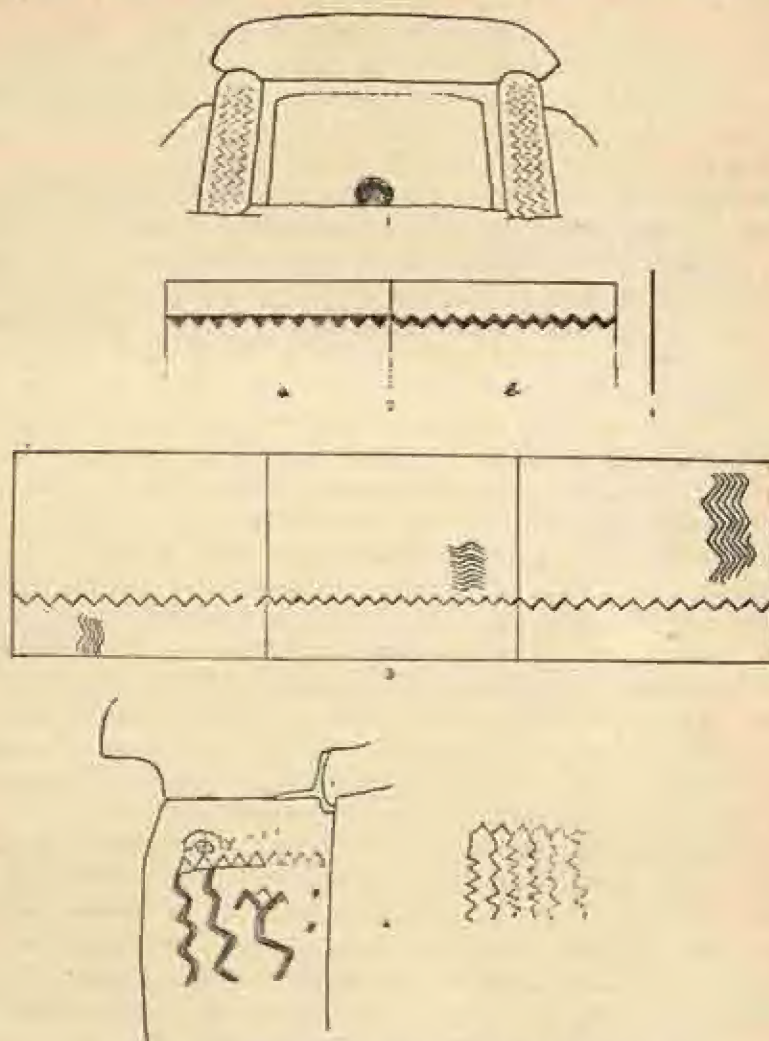


FIG. 3 (1-4). EXAMPLES OF DESIGNS IN THE DOLMENS

those of domesticated animals, such as sheep and horses. Cattle-keeping was certainly quite common, and we are here dealing with a people who were nomad cattle-keepers. Pottery and pot-sherds have

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been found with the burials and those reproduced are decorated with geometrical patterns of the Early Bronze Age and are never painted. Bronze tools, such as awls, chisels, gouges, daggers and rings are also present. Stone weapons are lacking. Only flint flakes, scrapers and arrow-heads serve as evidence to prove that this culture is not far removed from a period when stone prevailed. But, as shown by some remarkable and rich burial finds—as well in the Kuban as in Abkhazia—the culture of the Caucasian dolmens is a real Bronze Age culture. Metal was in common use for implements and tools.

The following particulars show the contents of some of the richest megaliths known, including one incompletely investigated dolmen in Eshery, near Sukhum Kale in Abkhazia, where there is a group of 13 very large dolmens.⁴ In one of these there were about 30-40 interments, and another, not completely examined, had at least four skeletons. Besides two bronze axes, a hook, and daggers, there were a polishing stone and pots; the latter were small and poorly ornamented. I am very much indebted to the Editor of *ANTIQUITY*, who visited the museum of Sukhum Kale last summer and made a sketch of one of the pots, the only one existing in the museum. He has kindly placed his sketch at my disposal (fig. 4).

The Tsarevskaya dolmens⁵ have often been described in English publications and I can therefore pass them over briefly. There are two large burial-mounds containing many graves, and in each there was a stone dolmen, made with extreme accuracy. Each dolmen was divided into two compartments, separated by a quadrangular slab, furnished with an opening which was covered by a stone disc. Only the larger of the two compartments contained a skeleton, in a contracted position, covered with red ochre, as were the walls of the chambers. In the smaller compartments were pottery and tools.

The rich contents of one of the Tsarevskaya dolmens is to be seen in fig. 9. In it were found ornaments, pins, beads and rings of gold and silver (fig. 9: 1-2), as well as a quantity of bronze implements (fig. 9: 3-6), chisels, gouges, axes, spearheads and daggers. There was also a large number of pots, mostly globular in shape (fig. 9: 8), and decorated with geometric patterns. Flint arrow-heads and a polishing stone were the only stone implements (fig. 9: 7, 10).

⁴ M. Ivashchenko, 'Beiträge zur Vorgeschichte Abchasiens'. *ESa*, VII, 1932.

⁵ *Ochót of the Imp. Archaeological Commission* (=Ochót) 1898, p. 33ff, and pls. 1-VI. V. Gordon Childe, *The Dawn of European civilization*, p. 140.

DOLMENS OF NORTH CAUCASIA

Most of the Caucasian dolmens are homogeneous in time and culture. They have counterparts in cultural remains known from barrows in the Kuban region, which, with the dolmen finds, constitute a cultural group of a distinct character, viz. the Kuban Early Bronze Age civilization, which is very rich in objects of oriental type. It is the earliest developed culture known in the Caucasus and I shall endeavour to determine its general features.

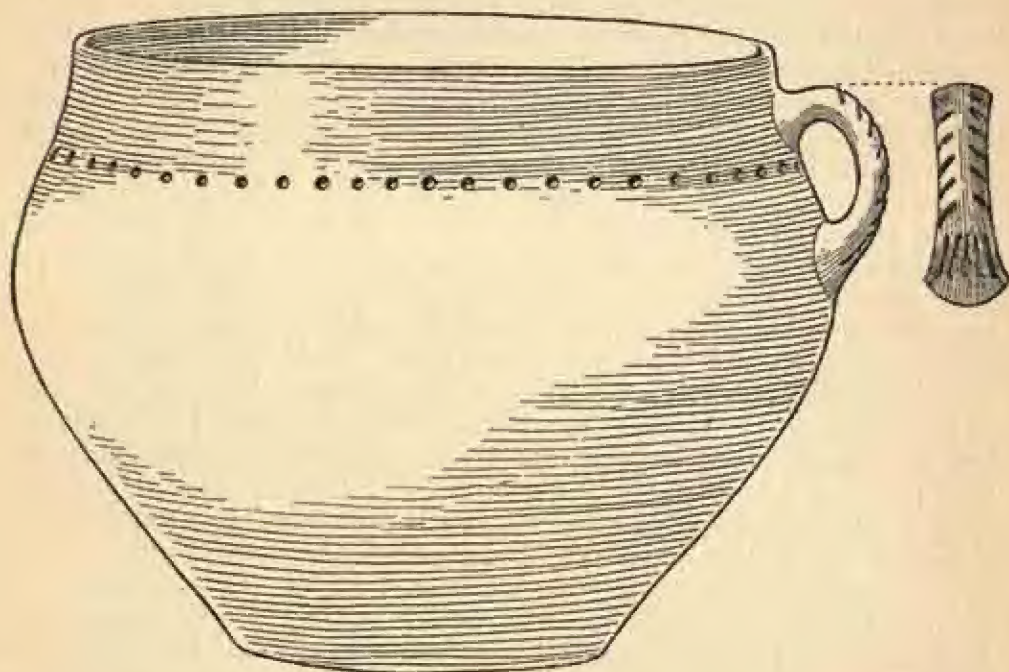


FIG. 4. POT FROM THE ESHERY DOLMEN, NEAR SUKHUM KALE, ABKHAZIA 1

The treasure-find of Staromyshastovskaya, which some peasants dug up by chance in 1897, consisted of a small silver bowl with a lid. In the bowl were about 2500 gold and silver beads and 400 carnelian and glass beads, probably belonging to collars and ear-rings, about 80 gold rings, often joined to each other, and some other ornaments of precious metal. Among them there was a pendant in the form of a lion's head, a massive pierced silver figure of a goat, and a gold diadem, which had been ornamented with gold rosettes, but only one of them

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remains. All these objects and ornaments are oriental in origin, without analogies in Europe outside the Kuban. I consider Elam or Asia Minor to be their country of origin.

Close parallels to most of the ornaments of the Staromyshastovskaya find are known from the famous Maykop barrow, opened in 1897.⁶ This kurgan was 10 m. in height and about 200 m. in circumference, and contained several tombs, and two shaft-graves. The larger of them, a pit 5.5 by 3.75 m. in length and 1½ m. in depth was constructed of wood, divided into three compartments. The floor was paved with boulders. In the largest compartment there was a skeleton in a contracted position, evidently a prince or important man. In each of the smaller compartments there was a woman buried, the man's wife or servant. In the larger chamber were found, among other things, the four silver and gold posts which had supported a canopy, each with golden finials in the shape of a bull or lion, of the same kind as the goat of Staromyshastovskaya, the signification of which is thus elucidated. There were 135 gold figures of lions and bulls, and rings of the same shape as those in Staromyshastovskaya, used as frontal ornaments of the canopy. A gold diadem with rosettes and thousands of gold, turquoise, carnelian and silver beads and rings were also found. Most interesting are the 17 vessels of stone, gold and silver, or their alloys. Some of them are exactly like the bowl of Staromyshastovskaya. Two of the vessels are decorated with engraved figures of mountains, streams, animals (fig. 5). The late Prof. Farmakovsky, a distinguished Russian archaeologist, has interpreted these ornaments as representing a landscape or a map of the king's realm showing Caucasian mountain-tops.⁷ The whole of this jewellery of Maykop must, no doubt, be connected with the ancient Orient. I imagine that at this time there was in Kuban an empire of nomad warriors, who had oriental craftsmen and artists in their service, and who were cattle-keepers and perhaps agriculturists.

In the principal Maykop barrow there were also tools and weapons of copper or bronze: axes, gouges, daggers, arrow-heads of flint, a polishing stone, a 'boomerang' of stone and over a dozen clay-pots, partly decorated with geometric patterns.

It is a fact of great importance that exactly the same kind of tools and pottery were found in the two Tsarevskaya dolmens. Though articles of gold and silver were found in these dolmens they did not

⁶ *Ochót*, 1897, p. 2ff; Rostovtzev, *op cit.* note 1.

⁷ Materials concerning Russian Archaeology (= *MAR*) 34. Petrograd, 1914.

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contain so much as those at Maykop. At Maykop there was a burial-chamber of wood, of the same construction as the stone-houses in the Tsarevskaya kurgans, showing that both belong to one time and one culture.

The main aspect of the culture now under discussion is Oriental. This applies to the metals and the objects made from them (fig. 9) and to the emblems of royalty and divinity met with at Maykop (fig. 5).



FIG. 5. DESIGN ON A VASE FROM MAYKOP (after Farmakovsky)

I may remark also that the forms of most of the copper-tools show a similar affinity to the Asiatic tools found in Syrian graves,* such as tongued spears, quadrangular chisels, long oval 'beads', and pins with a bent head. Only the pottery in Kuban is different from that of Asia Minor.

* *Liverpool Annals of Archaeology*, vi, pls. 19, 21, 24, 25; vii, pl. 22. Analogies also from north Persia. Cf. *Supplement to the Bull. of American Instit. for Persian Art and Archaeology*, vol. II.

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The Caucasian dolmens were formerly regarded as an offshoot of the latest group of western megaliths, *i.e.* of the late Neolithic cists. I am of the opinion that as regards their origin in the Caucasus they are an Asiatic and not European type. Stone graves—shaft-graves cut in the rock in the form of artificial caves—are common in the ancient East and in the Mediterranean. Close parallels even to the Caucasian cist-dolmens are known in western Sicily, in Transjordan and in India (fig. 2: 6). The west-European analogies are much ruder in shape and execution.

Taking into consideration all the above facts I am convinced that the culture of the Kuban Early Bronze Age is primarily an oriental one, or at any rate orientalized to such a degree that Asiatic elements prevail. I think that here we have to do with the origins of one of the cultures known in Asia Minor in the second millennium B.C.

In recent years students of early eastern civilizations have furnished us with new and important historical facts, which also partly concern the Caucasus. Prof. Hrozný, the distinguished Czech philologist, has published his investigations^{*} and we learn from him that among the powerful peoples of Asia Minor mentioned in the deciphered Hittite inscriptions of Boghazkeui there are at least three that arrived in Asia from or *viâ* the Caucasus. The first of them, the Asianic Khatti, penetrated into Anatolia in the fourth millennium B.C. They possessed a culture which played a role in the later Indo-European Hittite empire. The second Caucasian immigration wave brought the Hurri (the 'Cassites') into east Anatolia about 2000 B.C. They founded the Khaldish Urartu empire (not of course Chaldean) and in addition ruled over large parts of northern Syria. The third immigrants were the Mitanni, who conquered the Hurri empire and formed the leading power in eastern Asia Minor about 1600 B.C. They formed an aristocratic element in the Hurri-Mitanni empire and spoke an Indo-European language which was nearly allied to Sanskrit, and was perhaps identical with it. They worshipped the same gods as did the Aryans in India, *viz.* Varuna, Indra, Mitra.

The evidence of antiquities alone enables the archaeologist to determine only cultural, and not ethnographical areas. But if furnished on the historical side with facts and dates, he is justified in trying to equate historical events with his cultural groups which he has established by means of his own material (and whose chronology is firmly

^{*} B. Hrozný, 'Histoire et progrès du déchiffrement des textes'. *Archiv. Orientalny* 1931, p. 272ff.

PLATE I



FIG. 6. DOLMEN NEAR GELENDZHIK
(Figs. 6-8 from *ibid.*)

PLATE II



Fig. 8. DOLMEN ON THE DEGEKO RIVER, DAKHOVSKAYA

PLATE III

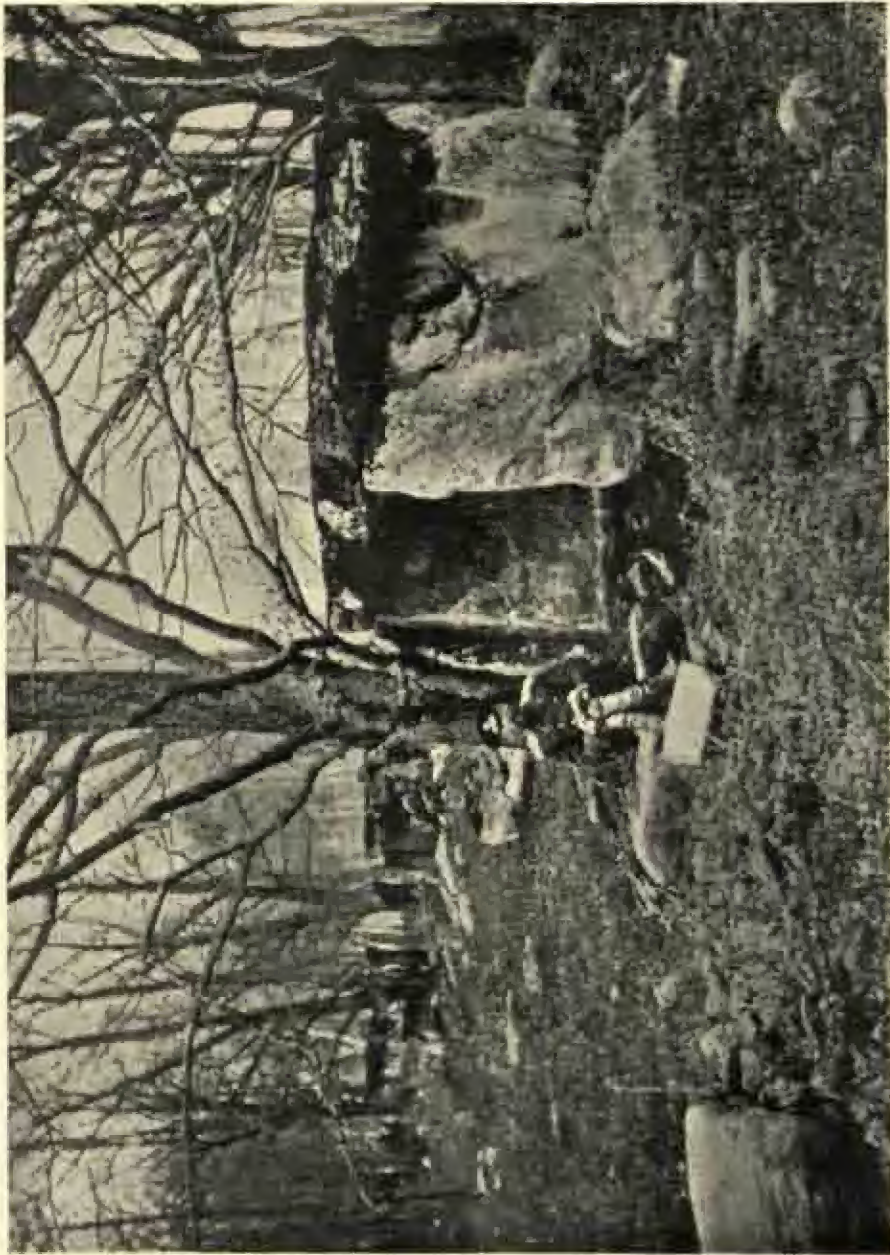


FIG. 3. AVENUE OF DOLMENS BETWEEN TSARANSKAYA AND AUNDZHIUSKAYA

PLATE IV



FIG. 9. JEWELRY, TOOLS, ARROW-HEADS, POTTERY AND BONE BEADS FROM TSAREVSKAYA

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established). In this particular case he has to determine whether there is in the Caucasus a civilization with which *e.g.*, the name of the Hurri or the Mitanni peoples can be associated. I think there is. The culture of the west-Caucasian dolmens of the first period of the second millennium B.C. is this civilization.

The Kuban culture is not a purely Oriental culture. It is related to the late Neolithic cultures of its northern periphery in Russia and Central Europe. This is especially true of the ornamented clay pots, found in Maykop, Tsarevskaya and other Caucasian tombs. I know of no analogies to this pottery in Asia. Some of the bronze weapons are likewise without any counterpart in the ancient East. The pots have near relatives in Central Russia and in Germany among the local industries, *viz.*, in the so-called Fatyanovo and Thuringian cultures.¹⁰ Those are Stone Age cultures, but do not belong to the latest local Stone Age groups of the corresponding countries. Thus a chronological classification or, let us say, a cultural level, is obtained: on the one hand, the Kuban Early Bronze Age, on the other the Thuringian Neolithic pottery and the stone battle-axes of the Fatyanovo period are contemporary. They coincide in time with the older megalithic passage-graves in Denmark and Great Britain. Their exact date is about 2000 B.C. or somewhat later. The so-called dagger period—the latest Scandinavian Stone Age—is later. The very end of the local Stone Age—the period of the stone cists—must, in any case in Scandinavia, be dated a few centuries later than the Early Bronze Age of the dolmens in the Kuban.

I have ventured to express the opinion¹¹ that in the Kuban Early Bronze Age, migrations are reflected which brought Central European nomads to the Kuban region. There, in this fertile area, they may, I suppose, have adopted relatively early an eastern civilization, in the same manner as Teutonic tribes did about 2000 years later on the frontier of the Roman Empire, where they quickly became Romanized. My opinion is, of course, only a theory and cannot be stated with certainty. Different opinions have been expressed. The question will be determined only when further excavations in the Caucasus and in Asia Minor have given us new information concerning the history of the industry.

¹⁰ *Finskt Museum*, 1924, p. 1ff. 'Europaeus-Ayräpää' in *ESA*, VIII, 1932.

¹¹ 'L'âge du cuivre dans la Russie centrale'. *Suomen Muinaimuisto yhdistyksen Aikakauskirja*, XXXII. Helsingfors, 1918.

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The Hurri are a Caucasian, not an Indo-European people. The Kuban culture now discussed is closely connected with Europe. The people who created it, are, I suggest, an Indo-European aristocracy. In this case I am inclined to think of the Mittani, the Indians among the local Hurri people, who appear in Hither Asia about 1600 B.C. This date may be taken as the end of the Early Bronze Age on the Kuban.

We have found that the Kuban dolmens are contemporary, not with Scandinavian stone cists, which are somewhat of the same shape as the Caucasian ones, but with the passage-graves. The cultural stage of the Scandinavian and west-European passage-graves was lower than that of the Caucasian dolmens. The Caucasian dolmens are also much more developed in construction and precision than the contemporary megaliths of Western Europe. If, as I believe, the Caucasian dolmens really represent an oriental type of grave, developed and existing there at a very early period, then I think they must have influenced the northern cultures of Central Europe, which kept up connexions with Scandinavia and led to imitations in wood and stone. So the 'window' cists in Saxony and Hesse, which are quite exceptional in Germany, seem really to be early in origin,¹² and contemporary with the Caucasian dolmens and influenced by them, while most of the northern cists are much later. The megalithic people in Scandinavia adopted the new form of tomb: it became quite common in Scandinavia at the very end of the Stone Age. I do not believe in an internal evolution of the Scandinavian megaliths, according to which the passage-graves would have developed into stone cists. The last mentioned are newcomers from the East, chiefly by the land route from the Caucasus, partly perhaps also by sea from the Mediterranean, and they were adopted and imitated in Europe. Analogies to this phenomenon can be found in historical periods. The first Caucasian high culture is, I submit, contemporary with the zenith of the early Cretan cultures, so brilliantly discovered and studied by English scholars.

¹² Ebert, *Reallexikon*: Göhlitz, Helmsdorf, Züschen.

The Abbots Bromley Horn Dance

by VIOLET ALFORD

FEW people know of this, possibly the most primitive dance in Europe. We find scanty records therefore, the earliest dating only from the 17th century. Robert Plot, in his *Natural History of Staffordshire*, 1686, p. 434, says :—

At Abbots, or now rather Pagets Bromley, they had also within memory, a sort of sport, which they celebrated at Christmas (on New-Year and Twelfth-day) call'd the Hobby-horse dance, from a person that carryed the image of a horse between his leggs, made of thin boards, and in his hand a bow and arrow, which passing through a hole in the bow, and stopping upon a sholder it had in it, he made a snapping noise as he drew it to and fro, keeping time with the Musick: with this Man danced 6 others, carrying on their shoulders as many Rain deers heads, 3 of them painted white, and 3 red, with the Armes of the cheif families (*viz.* of Paget, Bagot, and Wells) to whom the revenews of the Town cheifly belonged, depicted on the palms of them, with which they danced the Hays, and other Country dances. To this Hobby-horse dance there also belong'd a pot, which was kept by turnes, by 4 or 5 of the cheif of the Town, whom they call'd Reeves, who provided Cakes and Ale to put in this pot; all people who had any kindness for the good intent of the Institution of the sport, giving pence a piece for themselves and families; and so forraigners too, that came to see it: with which Mony (the charge of the Cakes and Ale being defrayed) they not only repaired their Church but kept their poore too: which charges are not now perhaps so cheerfully boarn.

Why Plot says 'within memory' it is difficult to understand, unless there was a temporary cessation of the rite. He might easily have learnt whether the sport still lived or no, but from this and various internal points I suspect the Doctor never went to see for himself. Like too great a number of folklorists he preferred keeping his nose in a book to embarking on 'field work'. The pot into which they put the feast has now disappeared, and so far from repairing the church and keeping the poor, the few shillings gained hardly pay the dancers for the loss of a day's work.

Brand, in his *Observations on Popular Antiquities* (1813) repeats this, quoting from Plot, and another eighty years went by before T. F. Ordish, in *Folk-Lore*, 1893, IV, 172-4 mentions the dance. Other notices have appeared in *Folk-Lore*, one (1896, VII, 382-4, pls. IV-VII) giving photographs of the horns, the horse's head and the bow; another suggests that it is a magic dance to call the deer within range. In

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Sword Dances of Northern England Cecil Sharp includes the Horn Dance, which is in a category by itself, and gives instructions for dancing the figures, and in the accompanying book of music is the plaintively monotonous, beautiful tune now nearly forgotten in its native village. Miss Evelyn Sharp, in her *Here we go Round* touches upon it, but seems ignorant of the fact that it was once a Winter solstice feast. Except for remarks in a local guide book these few references make up the written history of one of England's mysteries.

Warm and cloudy weather for the wakes. The feast is held during the week following 4 September, which is the day of the local fair. Very unpretentious are the entertainments—a cricket match, a travelling show, swings and a roundabout. But on the Monday nobody goes to work, every man is in his best clothes. A deserted street, the inns already full, perfect quiet outwardly, inwardly a somewhat mysterious excitement. 'Where are the Horn Dancers'? you ask anxiously. The quiet seems too profound. They cannot be dancing this year. 'Mrs Bentley! Are the dancers out'? calls a powerful-voiced young woman. And from further down the street comes a faint echo 'They're out'.

That is rightly said. That is what you were subconsciously waiting for. Out. In high Vallespir the bear is 'out' on a Candlemas morning. In a valley of Navarre the Hobby horse is *salido*. Under the highest Basque mountain the Spring masqueraders, all mirrors and feathers, and reds and yellows and blues, are *sortis* with their Hobby horse too, and their petticoated man-woman. You hurry to the church, but it is already too late. The vicar is on his way back from seeing them off, which benediction is given about 10 o'clock in the morning. 'They're out', he says, but you enter all the same, and in the north transept you find the six stout wooden brackets on which, the year round, the horns hang in the care of the church. You start in pursuit, the way taking you past ancient limes whose limbs rest on the grass, under 'great dotard oaks', far into the vert of Bagot Park.

What are those dim creatures moving so gently, so furtively, down there in the deepest shade? Your breath jerks, you have an eye for the nearest stile. A herd of brightly coloured deer is coming softly up the lane. Red flutters and a tinge of green. What light there is is catching tossing points; slides along great spreading branches. It is a herd of deer, but not our light fallow deer. Enormous heads these, they seem to fill the lane between the hedges, great spreading heads—reindeer. Reindeer, here in the English Midlands. The faint buzz

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of an accordion brings back wandering wits, and a farm lad from the other side of the stile calls out, 'Here they are'.

The reindeer herd shrinks to six men-deer, one man-horse, a tall, man-woman with a gentle rustic face, a jester-like Fool, a little hunter boy with bow and arrow, and two musicians, one of whom is a dancer as well. This queer company is quite silent, and after their long morning's work, not a little weary. They turn into a farm-track, immediately and without a word range themselves in a single file, and to the buzz of the accordion begin to trace a wide circle round the barton. The line melts into a serpentine line, the leader turns inwards and passes between the second and third dancers, so that the whole file performs a complete loop and plods on again. Plod is the right word. No dance step is attempted while on their rounds, no swaying of the body, no rising on to the ball of the foot—a steady rhythmical plod, but withal a swaggering plod. The accordion player sits on the bank and squeezes out a familiar, common tune. The rhythm is strengthened by the twanging of the bow, the clacking of the horse's wooden jaw, by the bell sound of a triangle, and by the tapping of the wooden ladle and short stick held by the man-woman.

So do the folk, with the simplest means, produce good, solid effects, and in rural England you may be sure of a fine, firm rhythm. It must have been this gift of rhythm as much as bodily agility which gave the dancing English their 'fair presence'. When one hears Swiss folk singing so strongly in parts—a gift of the Welsh but not of the English—the effect is often spoilt by uncertain rhythm, and one sees why the Swiss musician, Jacques Dalcroze, was moved to invent his system of eurhythmics. As a rule English rhythm is eurhythm.

A grunt proceeds from the leader of the deer. The file splits into two, facing each other. They meet and retire. As they meet each man-deer raises his antlers with a beautiful, instinctive movement, as though he would fondle the head coming to meet his. Now they appear to lock horns as a trial of strength, which would be dangerous sport for such formidable heads. It is a relief when they cross over safely, passing left shoulder to left shoulder, turn and begin again from the opposite side. This meet-and-retire movement with the cross-over is repeated several times, and finally tails off into a renewed single file. And that is all. Yet once they danced 'the Hays and other Country dances'.

The six men-deer wear a costume much too medieval to have come from the folk they are. Yet weather and use have faded the whole into

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something not inconsistent with the forest-scape. Their flat caps of velveteen, their tight-fitting jerkins, their breeches and white stockings do not shock when seen beneath the mighty horns. These are set in animal heads of wood, and are bound with iron. They are covered with many—how many?—coats of paint, 'which they didn't ought' says the leader, very properly. The heaviest pair weighs 84 lbs. so the day costs a good deal in sweat and shoe leather. The heads are fixed on stout sticks, and these are grasped in both hands in front of the breast. The arms of the great families no longer appear. The horse has an ancient wooden head with a workable jaw, which is snapped on the first beat of each bar. A red cloth hangs round the man's legs, he holds a whip and wears a cloak spread over his steed's hindquarters. If, as Plot says, he once held thin boards between his legs he no longer does so. The horse-body is a shape of lathes with a weight at the back to keep it down, from which the horsecloth hangs and in which the man stands. Plot also says this dancer twanged the bow. I do not think he could have worked both jaw and bow at the same time, especially if he carried a whip, and it seems probable that this is the same head seen by the 17th century doctor.

Maid Marian wears a faded jacket, and a skirt not long enough to hide the trousers beneath it. Her headdress is a veil which floats behind her. She carries a wooden ladle, the bowl roughly scooped out of the block, and a thickish stick with which to tap it, both dark with years and use. She gently tells the housewives that she has come to help with the washing. The Fool wears a crumpled court-jester's dress, once parti-coloured, and carries a bladder with which he occasionally makes play. The musician, once the violinist who knew the correct and beautiful traditional air, now a player of the accordion, wears a short cloak and a wide felt hat. He plays three tunes, 'Bobby Shaftoe', 'Her Golden Hair' of music hall memory, and a not unpleasing nondescript tune in *alla* time. His attendant triangle boy and the hunter boy are dressed alike in faded reddish jerkins with skirts to them, white stockings and flat caps. The triangle was introduced about 1904, in order to accentuate the rhythm—perhaps when the dancers lost their old violinist—and the first triangle boy was Mr Bentley, the present leader. The bow and arrow are too small to have killed a deer, but appear to be as antique as the horse and the ladle.

These costumes have no tradition behind them. They were designed for the dancers by the too-knowledgeable wife of a former vicar. She took for her models the dresses of the Morris 'side' with

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its Fool, Hobby horse and Maid Marian, depicted in the famous Betley window. She could not manage trunkhose, so tight breeches took their place; she could not manage Maid Marian's laced bodice so a jacket replaced it, and I suspect the former man-woman, no doubt considered coarse by the helpful lady, assumed the name of Maid Marian with her dress. Today nobody remembers what the former dresses were like, but a photograph, in the possession of the Bentley family of about forty years ago, shows the Fool, already in his Betley window costume still clinging to a furry cap. In all probability this was his original headdress, thus bringing him into line with many a ritual Fool in England, and all over Europe. The assumption of some last vestige of animal disguise would be natural to his character.

The leader declares that the leadership has been in his family for at least 400 years. Such firm family traditions are generally founded on fact. They are not to be laughed at, for all such village rites are in the hands of certain priestly families, and jealously guarded by them. This family has lived in the place the 400 years required, a Bentley being entered as Constable of Abbots Bromley on the muster roll of 1539. Experience teaches that this tradition of leadership exists everywhere,—in Hampshire, amongst the mummers; in Béarn, in the Basque Country, in Portugal amongst the Mouriscos—who are the mummers of that country.

All this time the dancers have been standing by their horns, which make an outlandish heap in the middle of the barton, and at which the farm horses look askance. The farmer and his wife drop a copper or two into Maid Marian's ladle, and bring out welcome mugs of cider. Thus refreshed the men become reindeer once more, fall into file, wind out of the barton and across the park-like fields beneath the great trees left behind by the receding forest. An unforgettable sight, and one at which the cows lift their heads and then their tails, breaking into a frightened, inquisitive, lumbering gallop alongside these creatures of another age, creatures who themselves provided milk, flesh and covering when the green fields were yet beneath the ice. The visits continue till every outlying house, all unknowingly, has been taken its share of abundance and luck. Towards 5 o'clock the weary bringers of it pull themselves together, hold up their heads behind the mighty horns, and stepping well and together begin their dance in the village street itself.

'And that is the time to see them' says the policeman proudly. Like all folk-feasts the evening ends with drinking. But by that time the horns of plenty are safely back in the care of the church.

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A few questions may be considered, but not answered. That these foresters should find their sacred animal, who was god, food and raiment all at the same time, in the deer of the forest, is what might be expected. We have only to turn to the classic example of the Ainus' bear to understand how naturally this would come about. And Abbots Bromley has been a forest village until the partial clearance of Needwood. In the Exchequer records of Edward I we read of four gentlemen who, in the free chace of Needwood, took 100 bucks and does. At one time it covered '7860 acres of very forest-like ground'. It was divided into parks, each with its proper number of deer. Thus Hanbury Park had '1000 old dotard oaks and 300 deare'. An annual court called the Woodmote was held to hear encroachments and offences 'in vert and venison'. A petition was sent to Oliver Cromwell pleading commoners' rights for 'ancient cottagers who sustain themselves and their poor families on the chace'. In 1798 the Forest had increased to 10,000 acres.¹ Everything breathes the breath of the forest, and of the forest denizens. Timber may be cut on a breadth of land as wide as a deer's leap; the inns are Roebucks and Bald Bucks, the arms of the great families show stag's heads, the very redundancy of the name, Needwood Forest, helps to show its antiquity and its hold over its sons.

When the buffaloes had wandered too far, the Mandan Indians put on buffalo heads with skin and horns to perform their buffalo dance. Some with bows in their hands represented hunters who shot at the buffalo-men. A devil-like figure with huge phallus and buffalo tail, chased the women, and they said the dance 'never failed to make the buffalo come'. With this analogy before us, we cannot suppose but that the long-ago forest folk of Needwood were driven to practise the same magic, and that today we see them all unconsciously enticing the deer within range of that one antique, small bow. But reindeer? Reindeer were known in the far north of Scotland up to the 13th century. Reindeer in Needwood? Those mighty horns, hanging so innocuously in the church, whence came they? And when?

Again, when did the Hobby horse, the Fool and the man-woman of the far later morris, mummers and sword dance ceremonies, join themselves to the 'old ancient thing'? The morris lives or lived on all sides of Needwood, notably at Lichfield at the moment of the Whitsun Bower on Greenhill, which is a 'summer hall' of greenery, in which

¹ *History of Staffordshire*. Stebbing Shaw, 1798.

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a feast is held in connexion with, and confused with, a medieval Court of Array. These characters then had not far to go to join the reindeer-men (and traditions do travel, I have even seen them in the act) carrying with them their own interpretation of fertility magic.

The phallic figure chasing the women shows without a doubt that the buffalo, in the conception of the North American Indian, was bound up with general fertility and abundance. Many English and European Fools carry what may be phallic emblems and wear tails, so perhaps the Abbots Bromley Fool was, after all, one of the original company. The fact that it has been a Winter solstice rite² connects the dance still further with fertility in general. When used for its primitive purpose, and in its primitive days, it would, like the buffalo dance, have been resorted to whenever game was scarce, regardless of the season. I should add that there is also some evidence of a supposed Celtic deer-goddess, whose priestesses owned, milked and probably killed the deer, when the animal was sacred, but at the same time food and clothing. Far older than this is a queer conception from the brain of a man of the old Stone Age. On the wall of the Trois Frères cave in Ariège, France, someone once drew a man masquerading as a stag. The artist was so imbued with the animality of the man that he drew the stag's body standing upright like a man. Yet he was so imbued with the humanity of the stag, that in the animal's body a man's anatomy is plainly seen—thorax, scapula, patella. The head bears great spreading antlers, and beneath them a queer, pleading face, masked perhaps, has looked from the rock wall for ten thousand years.

² The dance was formerly done in the churchyard after service on Christmas day, which corroborates Doctor Plot.

Currency Bars and Water-Clocks:

A Reply

by REGINALD A. SMITH

[Mr Reginald Smith has sent us the following criticism of Mr E. Wyndham Hulme's article in our March number. He kindly gave permission for this to be submitted to Mr Hulme in order that any rejoinder which the latter might wish to make could be printed at the same time.—EDROR].

WITH reference to Mr Hulme's attack on Currency Bars and Water-Clocks in *ANTIQUITY* for March, attention may be drawn to the difference between science and archaeology, as discussed by Dr Randall-MacIver in the same number. The hard-headed man of science is not impressed by an array of authorities, and prides himself on dealing with things that can be weighed and measured. Currency Bars certainly come under that heading, and Mr Hulme quotes another full-fledged metallurgist, Dr Newton Friend, who has come to the opposite conclusion and supports the Currency Bar theory. Again, a classical scholar is quoted on the question of Caesar's description of currency in Britain; but Prof. Housman would probably appreciate the opinion of the late Prof. Haverfield, who settled (as he thought for all time) the reading *taleis ferreis* in the *Classical Review*, 1905, p. 206. When several readings exist, *praestat difficilior*.

Archaeologists may be reminded that the identity of these iron slats has been recognized for instance by Déchelette (*Manuel*, II, 1558) and in Ebert's *Reallexikon*, vol. III, p. 68. Further, Pheidon of Argos called in all the iron Currency Bars when coinage was introduced, and dedicated them in the temple of Hera where a great hoard of them has been found in our own day (Waldstein, *The Argive Heraeum*, I, 62-3). Bars in the form of spits were therefore in use on the Continent, but by Caesar's time were strange enough to call for special remark in Britain. Why should they be expected in the few graves known in the Currency Bar area, and why should there be any oral tradition of such hoards and their place of concealment? Even if the reading *annulis* were taken seriously, why has no hoard of iron rings as currency been found in this country?

CURRENCY BARS AND WATER-CLOCKS

Mr Hulme devotes four pages to a lecture on smithing, which may be useful to the trade but hardly helps the argument. The scholiast's quotation from Pytheas may 'have been overlooked by all historians of the iron manufacture', but not by archaeologists. He himself quotes Depping and Michel's *Wayland Smith* (1847), and it is again referred to in *Archaeologia*, xxxii, 324, and *Antiquaries Journal*, i, 189.

The distribution of these iron bars has been mapped (*Archaeological Journal*, lxix, 424; Bulleid and Gray, *Glastonbury*, ii, 399), and nearly all are included in a great square from Northampton to the south coast and from the Severn to Hampshire. If they are unfinished swords, why are they not found in quantity, for example, on the southeast coast? Swords were as much needed and used there as elsewhere; but Caesar tells us that Kent was the most civilized part of Britain, and it would be the first to have a coinage (about 100 B.C.). Hence the bar currency is found in the interior, where coins were unknown till half a century later.

The various counts of Mr Hulme's indictment are here dealt with in an abbreviated form (*italics*) without any conscious perversion of his meaning:—

A. *No similar system elsewhere.* Waldstein found in the ruins of the Heraeum two bundles of rods which he considered obsolete currency. Déchelette subsequently investigated the find in *La Collection Millon*, p. 229. A drachma was originally a handful of such spits or obols.

B. *No such bars in burials.* Very few graves have been found in the Currency Bar area, and the absence of bars is not surprising. No British or Gaulish coins are found in pre-Roman graves.

C. *The system unknown in the Celtic area.* Déchelette recognized two denominations in the spits found in the Saône at Châlon, which are described in *La Collection Millon*, 'Broches en fer d'époque gauloise servant de monnaies primitives', pp. 191–243, where possible parallels are quoted from Etruria.

D. *Sword-shaped bars found with Gaulish coins near Berne.* It has been proved that the Tiefenau site was an armoury. Unfinished swords do occur there, but they have long tangs not folded over, and expand away from the handle unlike the British Currency Bars.

E. *Iron bars suddenly disappeared, and (p. 63) unfinished swords are not likely to have been seen or described by Caesar.* Perhaps they never were in use in the southeast, which Caesar visited; but whether he saw them or not, he records the use of such bars as currency, and his word *talea* is appropriate for a slat. He knew it was generally of wood, and therefore added the qualifying *ferreis*.

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F. *No tradition of buried treasure on Currency Bar sites.* Not surprising: the site of buried treasure is not generally advertised.

G. *The socket-handle impossible on a finished product.* So far from being impossible it exists on hundreds of examples, and is certainly not a stage in the manufacture of swords, as proved at Tiefenau, where the tangs are not bent over, but are flat and tapering.

H. *The Celts had cutting implements of various sizes.* This to account for the various denominations, and the weight system is recognized on p. 70. If one size was for swords, what were the heavier ones for? Even if the smaller sizes were unfinished knives, what would be the finished form of the largest mood?

Caesar's words *ad certum pondus examinatis*, however translated, evidently apply to the finished Currency Bar, not to the lump of iron as it was before being shaped, like the sports prize in the *Iliad*, XXIII, 826. Granted that 'it is difficult to conceive any people, however primitive, employing two standards at the same time which are completely independent of one another' (Ridgeway, *Origin of Metallic Currency*, p. 3); yet Mr Hulme will also have read in the same work (pp. 262, 310) that among all primitive peoples copper and iron are appraised by measure, not by weight. His own contention that 'iron was no doubt sold by weight, but was never made to weight' is not very luminous; but consider what happens when iron bars of one or more denominations are manufactured by measurement. As Euclid might say, bars of the same length, width and thickness, made of the same metal, are equal in weight; and the only way to arrive at the normal weight is to strike an average. If one denomination is found to tally with a bronze weight of the same people and period, marked as a unit, the probability of deducing a weight system is evident, whether the iron bars were valued by length or weight. Averaging of course is open to abuses, but the weight system is recognized by Mr Hulme, not indeed in the alleged Currency Bars but in a series of bronze vessels found at Wotton in Surrey, which at first sight are not promising material for metrology. Here his objection is to the use of any of them as Water-clocks.

The archaeologist deals with things found and tries to explain them. In the case of Currency Bars he is helped by Caesar, but for literary evidence as to Water-clocks he has to consult early Hindu texts for one system, and classical writers for another. The dripping type is

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well known, but the percolating type, which is (or was till recently) used in India, Ceylon and Morocco, is known to be ancient in India, and would explain a number of thin bronze bowls with perforated base, which date from early British times. Before the 6th century of our era, the percolating system was described in a Hindu manual of astronomy, the smaller vessel sinking in a large one full of water, sixty times in the day and night. Mr Hulme figures a familiar hanging cauldron, and because some Water-clocks are of that shape, assumes that all our specimens were for culinary purposes. The majority are hemispheres or rather less than hemispheres, sometimes furnished with a light iron collar to give a little rigidity ; but it would be difficult to cook anything in them, and the perforated base is surely decisive. One from Ceylon and four from Britain are figured in *Proc. Soc. Antiq.* XXI, 326, and show the various shapes.

Mr Hulme suggests that a finely made bronze bowl with straight sides and eleven pairs of radial ribs (presumably that figured in *Brit. Mus. Early Iron Age Guide*, fig. 197 and *Proc. Soc. Antiq.* XXVII, 81) was a fat-reducing vessel. It is $9\frac{1}{2}$ inches across and nearly 3 inches high. The ribs are beaten up from below and converge towards a central perforation, which is obviously original and intentional. Any cook could here put the metallurgist to shame, and its use as a Water-clock is still the best suggestion. Apart from this deplorable lapse into comedy and the first sentence on p. 69 (which is quite unintelligible), here is an earnest attempt on the part of Applied Science to put archaeologists on the right lines and to eradicate error ; but Mr Hulme's arguments have not convinced the writer of the articles here pilloried.

Rejoinder

by E. WYNDHAM HULME

Mr Reginald Smith has made my task of replying to him easy, as he has evaded the main issues raised by me and concentrated his attack on other portions of my paper. Let me, therefore, recall that in 1905 he persuaded archaeologists and others to abandon the 'half-finished sword' theory in favour of his 'Currency Bars' on two grounds, *viz.* (a) that the bars contained too much metal, and (b) that the smiths who shaped the bars would not have prepared a large number to hand

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on to another for the finishing process (*Proc. Soc. Antiq.* 1905, Ser. 2, xx, 182). These were, and still remain his stock arguments.

In the March number of ANTIQUITY I commenced by stating that these views betrayed a want of familiarity with the elements of smithing practice, and I went on to show that there was always a loss of metal in finishing and that smithing had always been an interrupted operation—divided into the mooding and smithing stages respectively. Mr Reginald Smith does not challenge this account. Hence I am entitled to claim that the way is open for the reinstatement of the old belief. I am glad to say that my four-page 'lecture' on smithing has brought me support from scholars, archaeologists and others not connected with 'the trade'. Mr Reginald Smith says my lecture hardly helps the argument (p. 211), but in the opinion of some of my correspondents the 'Currency Bar' theory is doomed. It is opposed to the sense and practice of the trade.

Moreover, I went one step further, and under the guidance of Major Marples, showed that the folded socket was but a stage in the tang formation. What is Mr Reginald Smith's reply? A blank negative! He says (p. 212) the socket-handle 'is certainly not a stage in the manufacture of swords'. If he really feels so certain how is it that he does not tell us how the tang was made in early days without passing through the socket stage? All my experts accept Major Marples' explanation as correct.

If the 'half-finished' sword theory is the right one a good deal of Mr Reginald Smith's reasoning falls to the ground. One objection, however, requires an answer. He asks how do I account for the distribution of the bars and their absence, for instance, in the southeast coast district of Britain? My answer is to refer him to the maps in Messrs. Kendrick and Hawkes' *Archaeology in England and Wales*, figs. 73 and 77, which show the areas occupied by the Celts of the Iron Age B culture and the Belgae respectively. The sword-moods are found mainly in the Celtic area, and as the two races were on an unfriendly footing the Celts were not likely to trade with the enemy. Possibly they buried these hoards of unfinished weapons to prevent their falling into the hands of their opponents.

At Marin on the Lake of Neuchâtel out of about fifty Gaulish swords found there no two are said to have agreed in respect of length, breadth and weight (Keller, *Lake Dwellings*, 1878, pp. 406-14). The swords found in the entrenchments of Alesia (52 B.C.), according to the same authority, agree exactly in general form with those of Marin. If the

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swords varied so greatly there must have been a corresponding variation in the shaped bars from which they were made. This accounts for the wide limits set in Mr Reginald Smith's double-unit class to which, no doubt, the Celtic swords and daggers belong.

With regard to the subject of Water-clocks, I am content to point out that the arguments of Wright and Déchelette remain unanswered. Unless Mr Reginald Smith has some other explanation to offer he would appear to be committed to a 'Hot and Cold Water-clock Theory', which seems incredible.

For the careless omission of a line in my revised typescript I accept sole responsibility, and offer my apologies to readers of *ANTIQUITY*. The words omitted from the third line of p. 69 were 'still holds the field' with a reference to the discussion on Mr Reginald Smith's second paper (*Proc. Soc. Antiq.* 1915, Ser. 2, XXVII, 94-5). At this meeting, so far as reported, the Water-clock theory met with no support, but in the *British Museum Guide to the Early Iron Age*, 2nd ed., p. 164, it is stated without any qualification. Now we learn for the first time that it is only 'the best suggestion'. I think Mr Reginald Smith is wavering, and I hope to secure him as a convert on both issues within a reasonable period of time.

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THE NEW BATTLE OF GERGOVIA

Some stir has been caused in the French press by the mention, at a meeting of the Académie des Inscriptions on 10 February, of the alleged discovery of a Gallic oppidum. The new oppidum, found by M. Maurice Busset, Curator of the Clermont-Ferrand Museum, was hailed as Gergovia by M. Pierre de Nolhac in *L'Illustration* of 25 February. One or two English newspapers recorded this discovery of a lost city, and *The Times* of 7 March gave two illustrations of the supposed fortifications. The new site is the plateau Côtes de Clermont, to the north of Clermont-Ferrand, and M. Busset claims to have found not only the defences of the town, but also numerous stone huts, in some of which he has unearthed coarse pottery which he considers to be Gaulish. Gallo-Roman sherds have from time to time, it is true, come to light on certain parts of the hill, which is not surprising in view of the nearness of Augustonemetum (Clermont), but they need not point to more than the existence of a farm. Six or seven miles away on the other side of Clermont rises another plateau, strikingly like the Côtes de Clermont in appearance, which was identified by the Florentine humanist Symeoni in the 16th century as Gergovia, and on which finds of pottery and coins have been made. This site has satisfied the leading authorities on Caesar's wars¹ up to the present but M. de Nolhac dismisses it—and Symeoni—with contumely, and regards as valueless the medieval charters referring to lands in the immediate neighbourhood of the hill, in which the name Gergoye (or Gerguya and other near variants) occurs.² The patois form Dzargoy is still used by a few old inhabitants in the villages round, though it is now being ousted by the name Gergovia given to the plateau as a testimony to the efforts of modern scholarship and local patriotism. Certain other statements made by M. de Nolhac will surprise those familiar with Gergovia: for instance, that there is no water-supply on the hill, and that there is

¹ Jullian, *Hist. de la Gaule*, III, 465, n. 3. Rice Holmes, *Caesar's Conquest of Gaul*, 2nd edn. 1911, appendix, 756 ff.

² The earliest known is of 958, but the most definite is of 1230. See Desforges and Fournier, 'La Bataille de Gergovie', *Mém. de l'Acad. des Sciences, etc., de Clermont-Ferrand*, Jan. 1933, p. 5. This paper contains a detailed discussion of the topography of the real Gergovia, and a new theory as to Caesar's attack on the oppidum.

PLATE I



HUT ON GERGOVIA
Pl. E. Desbordes
(See p. 216)

PLATE II



A TRIBUTE-BRINGERS FRIEZE AT PERSEPOLIS

By permission of the Illustrated London News

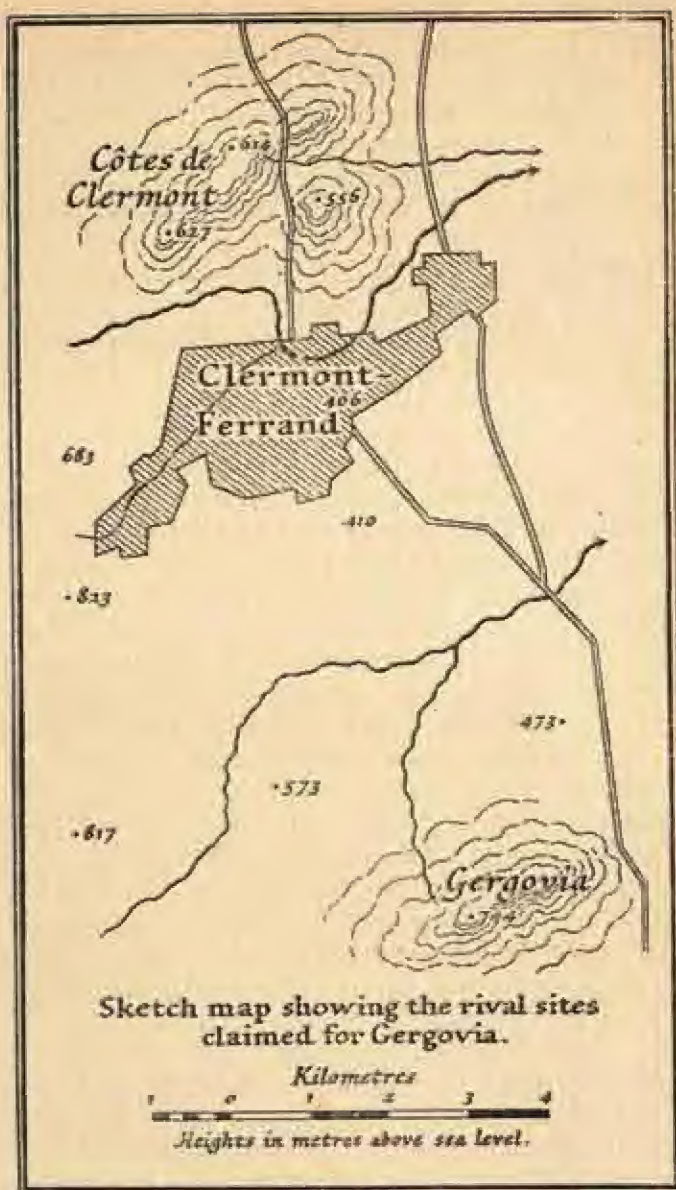
(See p. 219)



1 2 3 4 5 6 inch

A HOARD OF PALSTAVES FROM DEWLISH, DORSET
(See p. 221)

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no trace of any town wall. There are, in fact, vestiges of an old wall along the edge of the hill-top, which would need excavation before their rejection as possible ramparts. The excavations of Caesar's camps carried out by Colonel Stoffel are apparently not thought worthy of any serious attention, and the sponsors of the new theory, it may be added, place Caesar's main camp on the site of Clermont itself, and thus beyond the chance of investigation.

The new 'oppidum' can, however, be subjected to serious criticism on its own merits. The following remarks are largely drawn from articles by M. P-F. Fournier, Archiviste of the Puy-de-Dôme, which appeared in the Clermont *Moniteur* of 25, 27 February and 1 March. M. Fournier has also kindly supplied photographs and some additional notes.

M. Busset (in *L'Illustration*, mentioned above) describes several stone walls running parallel to the top of his plateau, connected by a number of transverse walls. The reconstruction scheme which he gives of these 'fortifications' is very difficult to understand, for the transverse walls would be a help to any assailant. They are, probably, not fortifications at all, but the dry stone walls common all over the mountainous districts of Auvergne and, indeed, the normal field boundaries in any rocky country. They are specially noticeable in places where steep hillsides are cultivated in terraces. Agriculture and viticulture have suffered during the last century in France, as elsewhere, and while on such a hill as the Côtes de Clermont there are still vineyards on the lower slopes, the upper slopes have lapsed back to grass, and the terrace walls remain to bear witness to more productive eras.

The most imposing of all the walls of the new 'oppidum', is a buttressed retaining-wall. The narrow terrace above it is crossed at intervals by boundary walls, and parallel to the buttressed wall is another retaining-wall. This last wall would constitute the upper rampart of the plateau if it were fortified, but at no point has M. Fournier been able to find any signs that it projected above the edge of the plateau, as a fortification wall would necessarily have done—nor is there any sign of the fallen rubbish which one would expect to find in association with so extensive a system. The size of the walls here and elsewhere is often simply due to the quantity of stones which had to be removed from the land before the soil could be cultivated. There are also stone huts dotted about the Côtes de Clermont, often built into the walls themselves, and called by M. Busset 'des sortes de casemates étroites voutées à encorbellement . . . analogues à celles que l'on a

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signalées à Tyrinthe, Mycène et Orchomène'. Such 'casemates' are to be seen all over Auvergne, to go no further afield, and are peasants' tool-sheds, of no great antiquity. Plate 1 shows one from the Côtes de Clermont which stands on the old Gergovia; such huts have been put up in the region within the memory of person now living. It may further be noted that most of the wall 'casemates' open downhill. As M. Fournier says: 'Quelle charmante amabilité de la part des défenseurs que de ménager ainsi des abris à l'assaillant'.

OLWEN BROGAN.

THE PALACE OF DARIUS AT PERSEPOLIS

Astonishing discoveries have been made by Professor Herzfeld, Field Director of the University of Chicago Oriental Institute to Persia. These consist of remains of sculpture and of much older cuneiform tablets in the Elamite language. Of the latter discovery no more than the bare fact is known at the moment, but it may well prove to be one of epoch-making importance. The sculptures speak for themselves (plate II). Their marvellous preservation is due to their having been covered up by the decay of the mud-brick walls of which the adjacent buildings were constructed. We are glad to learn that, thanks to the enlightened policy of H.I.M. the Shah of Persia, the necessary measures of conservation are to be taken.

The frieze here shown represents 'a great tribute procession of representatives of twenty-eight nations of the empire [of Darius], alternatively introduced by a Persian or a Median. . . . They bring their gifts to the Nōrūz, or New Year's festival on 21 March. The procession is arranged in three rows, and the representatives of each nation occupy a field of their own, framed by cypresses, the typical tree of Southern Persia. . . . The twenty-eight nations represent the twenty satrapies of old Iran, including a vast territory extending from Farghana in the northeast to Abyssinia in the southwest, and from the Balkans in the northwest to Sind in the southeast. . . . The usual gifts they bear are horses, camels, or bulls of special breeding . . . or rarer animals such as a lionness with her cubs, an antelope, a giraffe, the last ones being brought by Abyssinians and the people of Punt, which is the frankincense country on the Straits of Aden. Besides animals, every nation was accustomed to present specimens of the national costume of each, and, furthermore, vessels, probably containing something, or actually made of gold, and rendered with great care and skill by the Achaemenian artist'.

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This magnificent empire was destroyed by Alexander, the Macedonian military adventurer, together with the palace itself which he burnt in a fit of drunken madness. 'Although this story is told only in the romantic class of literature, such as Plutarch's life of Alexander, the fact of the fire is established beyond doubt. Everywhere a thick layer of charcoal covers the soil of the buildings—the remains of the cedar roofs which came crashing down as they were eaten by the fire. . . Later the whole terrace was covered, buried in earth up to a height of about 23 feet. No method of preservation could have been more efficient, and today the sculptures thus protected under these accumulations through twenty-five centuries can be unearthed in perfect condition'. (Professor Herzfeld in the *Illustrated London News*, 25 March 1933, p. 406. We are indebted to the Editor and to the Director of the Oriental Institute of Chicago for permission to quote the above passages and to reproduce the illustration from that published in the *I.L.N.*, p. 405. Further and more detailed illustrations were published in the issue for 1 April).

CAVES OF SOUTH AFRICA

Mr John Goodwin writes from South Africa that he has been investigating some interesting sections. On a farm, Oakhurst, George District, he has determined the following stratification of industries :—

Late Wilton, with nacre and ostrich egg shell ornaments, and a number of crescents of mussel shell, together with the usual types of stone tools and pottery.

Smithfield c, with three skeletons—all of the San type.

Smithfield B, with two skeletons—one fragmentary, the other closely allied to the San type ; as well as burnt bones, flakes and cores.

It is interesting to note that all the pottery found was in the Late Wilton layer.

Although no rock-shelter paintings occurred at the site, examples painted in red appear in another shelter some fifty yards or so away.

In the great cave at Mossel Bay, Goodwin has determined the following sequence of layers, containing :—

Disturbed Midden material

Undisturbed Midden material

Mossel Bay types of tools

Howieson's Poort types of tools

Mossel Bay types of tools.

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Furthermore, in the exposures of the twenty-foot raised beach not far away, rolled Mossel Bay implements were found *in situ*.

As Goodwin has already shown at the Congo Caves that the Mossel Bay industries are contemporary with those of Still Bay, and as Peers proved at the Skildegat cave that the Howieson's Poort industries are also contemporary with the Still Bay finds, it would now appear that all three types of industry are about of the same age and that they date more or less to the period of the twenty-foot raised beach. It is indeed excellent to observe that an interest in prehistory is still flourishing in South Africa, and that such interesting and important data are being collected.

M. C. BURKITT.

PALSTAVES FROM DEWLISH, DORSET

Among the leading archaeologists of Dorset in the middle of the last century was Mr Charles Hall, of Ansty, who made a considerable collection, chiefly of Bronze Age objects. The collection remained in his family until 1900, when it was placed on loan in the Dorchester Museum and it was purchased by the Museum in 1912. Unfortunately by the time they came to the Museum there were no labels on the objects, nor had any list or catalogue survived. Consequently in most cases they could only be described as 'Probably Dorset, but locality unknown'. Among such objects were the five palstaves shown in the accompanying photograph (plate III).

Mr William Shipp, of Blandford, was the editor of the third edition of Hutchins' *History of Dorset*, which was published between the years 1861-1870. In preparation for this work he collected a large number of notes, as well as letters, drawings, newspaper cuttings, plans, engravings, etc., about almost every conceivable subject relating to the county and filled six large scrap-books with them. These scrap-books are now in the Museum library at Dorchester, and in vol. III, p. 37 is a sepia drawing entitled 'Six Bronze Celts found by a boy in a field near Turnpike Road, Dewlish. In the possession of Mr Charles Hall of Ansty, 1845'. On comparing the above mentioned palstaves with the drawing, their identity was established without doubt. The whereabouts of the sixth palstave is not known.

It seems a reasonable conclusion that the palstaves were found together and so may be described as 'The Dewlish Hoard'.

No mention of this hoard appeared in the third edition of Hutchins' *Dorset*.

C. D. DREW.

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GOWARD HILL CAIRN, CO. DOWN

The excavation described below is the first of a series to be carried out by the writers in conjunction with the archaeological section of the Belfast Natural History and Philosophical Society. It was conducted in the summer of 1932, on a horned cairn on Goward Hill, in the townland of Goward, some two miles east of Hilltown, co. Down. The cairn is composed of loose stones and measures about 115 feet by 50 feet by 6 feet high. It contains three open chambers at the east end, extending immediately behind the horns, and very ingeniously constructed. The orthostates rest against pairs of jambs kept apart by sills rising to about half the height of the chambers. The western end is blocked by a large upright slab, while the eastern end is partially closed by two portal stones forming an integral part of the horns, with a two-foot entrance between them. All the chambers were filled with earth and boulders; the only finds in the western and central chambers being a few sherds lying directly on virgin soil: in the eastern chamber some two dozen small packets of ox bones, clearly intentionally deposited, were found in the stone filling. The side walls, here doubled, had partially collapsed, and had been repaired with rough dry-walling by the depositors of the bones.

An unusual feature is the asymmetry of the horns: that to the north has six uprights whereas the south horn has three. The whole forms a nearly true semicircle (diameter 37 feet) and there is every reason to believe that it is complete as it stands.

Most of the pottery found came from the forecourt. Though certain sherds have neolithic parallels, the group as a whole appears to belong to the Hallstatt-La Tène complex, and the fragments from the chambers are of the same type.

A small stone found loose on the cairn has an engraved lozenge ornament of Bronze Age type.

To test the problems raised by this excavation it is proposed to examine other horned cairns of the same type in the north of Ireland.

OLIVER DAVIES: E. ESTYN EVANS.

BERTRAM, STUKELEY AND THOMAS WRIGHT

The apology for artistic forgery presented on Roger Bertram's behalf by Mr RANDALL in the March number of ANTIQUITY will find acceptance with those who can 'salute his genius' and at the same time 'ignore his work'. But not everyone is in Mr Randall's happy

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position of being able to do both. Haverfield, while he described the affairs as 'almost an undergraduate's joke' (which implies perhaps little aesthetic criticism) had no doubt as to the 'untold confusion' of what Mr Randall himself calls 'the evil influence of Bertram's forgery'. Mr Randall is in actual fact an accommodating advocate, as many of his remarks, and especially the quotation from Haverfield (p. 59) reveal, but one suspects that not a few of his readers will find themselves still righteously angry, as were Woodward and Mayor, and feel that they cannot as yet afford to laugh at 'the immense harm that Bertram had done to the study of English archaeology'.

My intention however is not to disagree with Mr Randall as apologist, but to note a few points which have been suggested to me by his historical treatment of the Bertram controversy, with particular reference to the correspondence with Stukeley. The early history of the Stukeley MSS has always been something of a problem. Eleven letters from Bertram covering a period of two years were included in the collection of MSS which passed into the possession of John Britton.¹ When and how this happened has not been established. They had been, we are told, in his possession 'many years' in 1845, but he hesitated to publish them,² and in this he persisted until his death, though he displayed a portion of the collection at least twice—at the Lincoln meeting of the Archaeological Institute in 1848, and to the Society of Antiquaries in 1853.³

It may be of interest to call attention here to the references to this matter which are contained in the correspondence between Thomas Wright, the antiquary, and his patron Joseph Mayer of Liverpool.⁴ As early as 1840 or thereabouts Wright had examined portions of the Stukeley MSS (including a letter from Bertram), which had apparently been left for examination by the manuscript department of the British Museum, under Sir Frederick Madden.⁵ A comparison of the dates makes it almost certain that the MSS at this time were in Britton's

¹ Britton's own statements in *Gent. Mag.* 1854, xlii, 98, and in his *Memoirs of Henry Hatcher*, 1847, p. 9.

² Preface to Britton's *Memoir of Aubrey*, quoted by Lukis in preface to *Stukeley's Diaries and Letters*, vol. 1. (Surtees Society, 1882).

³ *Proc. of Arch. Inst., Lincoln Meeting*, pp. lviii ff. (By Albert Way, with brief account of Stukeley). *Gent. Mag.* 1853, xxxix, 77.

⁴ British Museum Add. MS. 33,346.

⁵ *Lit. Gazette*, July 1846, p. 627, quoted by John E. B. Mayor in the preface to *Ricardi de Cirencestria*, vol. II (Rolls Series), p. cxviii, note 5.

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possession. In a letter dated 6 November 1853, Wright, always on the look-out on behalf of Mayer (with whom he had recently come into touch) for valuable additions to his collections or possible material for publication which might bring honour to them both, wrote as follows :—

Mr Britton has left with me some volumes of the Stukeley collection and some other things, to show you when you come : he has also sent me the enclosed notice of the Stukeley collection drawn up by Albert Way.⁶ . . . I think very much of the Stukeley collection indeed. It contains multitudes of accounts with drawings of antiquities found in his time, the knowledge of which except as preserved in these MSS is totally lost, and there is a great deal of it that is really worth printing. I am inclined to think that he would accept the original price of £60 for them.

The Stukeley MSS then had been purchased by Britton for £60—a respectable sum, which doubtless explains his dread that publication might tend to reduce their value. 'They would', he says himself, 'have been given to the world had I been insured against the risk of loss from their publication'.⁷ It seems clear that he did his best to resell, and at a fair price. The examination at the British Museum was probably one of his earliest efforts ; but though Sir Frederick Madden was convinced at once of the genuineness of Bertram's 'Richard', Britton never succeeded in carrying through the transaction, for his price appeared too high. 'Those foolish people at the Brit. Museum', says Wright scathingly in a letter written on 6 January 1857, 'refused to buy it (*i.e.*, the Stukeley Diary) and the other papers for £50 a few years ago'. Nor did Mayer act in the matter, in spite of hints from Wright that others were making proposals to Britton for the MSS. When Britton died on 1 January 1857, Wright at once became urgent and on 6 January he sent the following to Mayer :—

Poor John Britton is dead at last. . . . Sotheby and Wilkinson will sell his library, etc. I would recommend you to look out after those Stukeley MSS he had. I consider that the Diary is worth printing. It is full of nice drawings of antiquities (British, Roman and Saxon) which were found in his time and have not been recorded elsewhere. I know that Roach Smith sets great value on it.

Three days later, after more inquiries :—

I suspect that the Stukeley MSS will lie between you and the Brit. Museum, as I know nobody else likely to push hard for them, unless Lord Londesborough, who would do it at the instigation of Smith or me, which of course he will not have. I should think they will put them in more than one lot, offering the Diary by itself, because the correspondence contains many very valuable autographs which might

⁶ This is the account referred to in note 3.

⁷ Preface, *Memoir of Aubrey*, cf. note 2.

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be bid for by dealers to sell separately. By what I have seen of it I think the Diary worth publishing independently of its archaeological interest. It contains a great deal of curious matter in the shape of notices of contemporary events and characters of contemporary individuals. I doubt if the Museum will give a very high price for it. However, there is no knowing, and I won't drop a word about it.

A few months later there was a hitch, and the expected sale of the MSS did not take place. In a letter of 5 April Mayer learnt from Wright that they had left Britton's hands :—

(I am told that) . . . they are just preparing the sale of Britton's library but that the Stukeley MSS will not be there. It appears that before they came into Britton's hands they had been stolen and that the rightful proprietor having made a claim to them before Britton's death he had been induced to give them up for a consideration of about £20. I will get to know who has them.⁸

The theft alleged by Wright, and the purchase referred to, are the only details known of the history of the MSS prior to Britton's statement of his ownership. The required information of their whereabouts eventually reached Wright through the antiquary, Robert Cole, whose letter of 14 May 1857 is preserved with Wright's own correspondence, and states :—

The Stukeley MSS have passed into the hands of Fleming St. John Esq. of Kenwick Grange, near Worcester, who is I understand a descendant of the antiquary.⁹

A plea may be added on behalf of Wright, against whom many accusations of error and inconsistency can confessedly be brought; but so much the more is it desirable to point out that in this matter Mr Randall, if only by implication, has hardly given him a fair hearing. The passage quoted (p. 55) from Wright's *Celt, Roman and Saxon* concerns the first edition of that work only. Mr Randall, in common with J. E. B. Mayor,¹⁰ has omitted to note that in the 2nd (1861) edition¹¹ and in the two subsequent editions (the last after Wright's death) this passage did not appear, the following being substituted :—' I confess that the more I read this book the more I am inclined to believe that

⁸ The figure here given conflicts with the £50 mentioned by Mayor as the price obtained 'for the letters' (*sic*) from 'a person connected with the Stukeley family'. (*loc. cit.* p. CLVII :—' Information from A. Way, Esq., on the authority of the late Rev. Jos. Hunter ').

⁹ In this connexion, see preface by Lukis (note 2 *ante*).

¹⁰ *Loc. cit.* p. XXI, although published eight years after Wright's second edition.

¹¹ The first edition of 2000 copies had been exhausted in March 1858 (letter of Wright, 23 March).

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the whole is a mere fabrication'. Wright's change of belief came late. His spirited defence of Bertram in 1846¹³ had admittedly weakened when his book first appeared; yet he was still prepared to offer his loyalty in 1857 when, in the letter of 6 January already quoted, he wrote to Mayer:—'Among the Stukeley correspondence are the letters of Bertram of Copenhagen about the MS of Richard of Cirencester, which I have seen and which I think prove its authenticity'. That the change did come should be credited to Wright's account.

Finally, may one express the hope that Mr Randall will shortly follow his own hint as to the value of publishing Stukeley's 'notes and observations'?

G. CLEMENT WHITTICK.

VIVIANITE

By permission of *The Times* we are able to print the interesting article on 'Vivianite: its Place in Archaeology' published there on 23 February last (p. 17). Vivianite was named about 100 years ago 'after J. C. Vivian, an English mineralogist, who found it in crystalline form in Cornwall, though it had been known before as "blue iron earth"'. The article in *The Times* was prompted by a suggestion that the formation of vivianite takes at least 1500 years, and their correspondent states that the article is a summary of inquiries among chemists and archaeologists who pooled their knowledge for this purpose.

'Vivianite is formed in the absence of air, and in the presence together of iron moisture, bone, or decayed vegetable matter such as leaves or bark of trees; in clay or peat some feet down. It is a "hydrous ferrous phosphate" with a formidable formula of six letters and five figures, and, colourless when fresh, turns blue on exposure to light. (Green is rare). In the spoil heaps, nearly always when I found blue, bone was in association; so that in the very few exceptions I concluded the vivianite was dissolved bone. It is often found with a film of creamy batter surrounding the blue.

'Would vivianite serve archaeology as dating material? Could one argue, "Vivianite: therefore the associated finds date, say, before A.D. 500"? Not so, in the opinion of Mr Donald MacAlister, because its formation depends "on several conditions, the coincidence of which is a pure matter of chance". Thus, if the iron moisture is weak and

¹³ *Lit. Gazette*, 1846, p. 627, quoted by J. E. B. Mayor, *loc. cit.* p. CXLVI.

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irregular, the time of formation will be longer. Perhaps in favourable conditions a few years only would be necessary. But this is not yet proved; meanwhile I have started an experiment to see if it can be produced in a year or two. Archaeology does not seem to have dated vivianite after 1650, at the latest; but there is no assurance that all excavators who have seen it have recorded it. I have looked through a great many reports without finding mention of it. What do definite communicated results show?

' Vivianite was found in wood 5 feet down in mud in M. Vouga's recent lake-dwelling excavations at Auvernier (two miles west of Neuchâtel, Switzerland), late-Neolithic in date. Also frequently in the lake villages of Glastonbury and Meare (200 B.C.-A.D. 50), in the foundations of dwellings 4 feet to 10 feet down under the bark of brush-wood or timber, and often in clay mixed with wood, but "not on fragments of bone". The colour is fast, having resisted exposure for five or six years. (Incidentally, I have made a good indigo-blue paint from it). In the excavation (1928) of the earliest rampart at Bainbridge, Wensleydale, vivianite was found, the date of the rampart being c. A.D. 80-90. It was "built of layers of clay separated by layers of moss. . . . The decaying moss had turned the clay black and given it an evil smell". At Fordingbridge, Hants, was found in a Roman-British midden, dated about A.D. 300, wood stained with vivianite, while the skull of a horse and other animal bones at 6 feet depth were unstained, though lying in ferrous moisture. There was a deposit of vivianite on the floor of an Anglo-Saxon hut, dated A.D. 500-650, sunk 8 feet into gravel; a log seat and other wooden materials on a mass of clay were thickly coated with it. In a crannog (artificial island on piles in a shallow lake) at Ballinderry, Ireland, Mr H. O'Neill Hencken found it last year in a house foundation and in a drain below a level of brush layers. This was dated approximately A.D. 900. It has been found "in a large number of ancient sites in Scotland, always in moist situations with bone débris"; but these are not dated. In 1846 a human skeleton, with vivianite crystals on it, was found in an old mine at Scharley, Silesia, which dates between A.D. 1250 and 1650.

' So we may infer that vivianite usually belongs to ancient sites, from 4 feet to 10 feet down. Whether the presence of bone is necessary to its formation does not seem clear; its presence on wood, as explained by Mr MacAlister, may be due to the separation of bone tissue adhering to gelatine and fat. Its minimum time for formation is not yet known, though the Scharley example gives us roughly five centuries'.

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We also have permission to print the following letter (*The Times*, 18 March, p. 8) by the writer of the article, in which a few more facts which had been received are given.

'Professor R. Newstead reports that he found a remarkable deposit of vivianite in the infilling of the rock-cut channel at the bottom of the Roman ditch (the outside edge) near the southeast angle of the fort at Chester. In this case the causes of formation appear to be a channel for moisture, iron in the sandstone through which the ditch was cut, and vegetable matter contained in the black soil of the infilling. The date of the ditch is the second half of the first century. "Its presence," writes Professor Newstead, "in made earth is, however, quite exceptional. On the other hand the presence of vivianite in the Upper Boulder Clay is characteristic of such deposits. At Saltney it was plentiful in the fresh cuts of virgin clay". The fresh point here is that vivianite is independent of made earth.

'On the contrary, Mr Edward A. Martin writes that on to the sea front just east of the Madeira Road at Brighton the carts used to tip the liquid mud from the streets, and this road rubbish has produced vivianite in 50 years. It thus appears that the period of 1,500 years originally mentioned in connexion with the Glasgow skull has been gradually narrowed down to 50 years, and I should not be greatly surprised if experiment proves five years enough. Vivianite, therefore, is of no use to the archaeologist as dating material; and it does not seem that its presence is necessarily a warning to look out for bones which might in themselves be datable'.

CORRIGENDA

The article on 'Dogs' in the December number of *ANTIQUITY* has attracted general interest and one reader suggests that on p. 413, line 7, 'higher' mammals would be a more correct statement than 'larger'.

On page 38, line 6, of the March number, '6m.' should have been given as 36 m.

Some Recent Articles

This list is not exhaustive but may be found convenient as a record of papers on subjects which are within the scope of ANTIQUITY. Books are occasionally included.

The Roman Wall in Scotland, by Sir George Macdonald. Royal Institution Lecture delivered 16 December 1932.

Excavations in the late Neolithic fortress of Homolka in Bohemia, by Vladimir J. Fewkes. *Proc. Amer. Phil. Soc.* 1932, LXXI, no. 6, 357-92.

An interesting account of an important completely excavated site in Central Europe. The full report is expected to be published during 1933.

The Distribution of Mesolithic Sites in the North of England, by Dr A. Raistrick. *Yorkshire Archaeological Journal* 1933, XXXI, 141-56.

Prehistoric archaeology in Wales since 1925, by W. F. Grimes [of the National Museum of Wales]. *Proc. Preh. Soc. E. Anglia* 1932, VII, 82-106.

Brings Welsh archaeology up-to-date since the publication of Dr Wheeler's *Prehistoric and Roman Wales* in 1925. There is a map, and many plans and illustrations. Condenses a great deal of work into a small compass, to the advantage of all students.

The Financial Aspect of the Cult of St. Thomas of Canterbury, as revealed by a study of the monastic records, by C. Eveleigh Woodruff. *Arch. Cantiana* 1932, XLIV, 13-32.

Social and Economic conditions in the Holland Division of Lincolnshire from 1640 to 1660, by Gladys M. Hipkin. *Assoc. Archit. Socs. Report* 1931 (issued 1933), XL, part 2, 137-256.

Ffridd Faldwyn hill-fort, near Montgomery, by Willoughby Gardner. *Arch. Cambr.* 1932, LXXXVII, 364-71.

English Place-name puzzles: a methodical investigation into the question of personal names or descriptive words in English place-names, by R. E. Zachrisson. *Studia Neophilologica*, v, 1-69.

In this article Dr Zachrisson urges the importance of the topographic as contrasted with the personal factor in OE place-names.

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Ein römisches Barbierbesteck aus Köln, by Waldemar Haberey. *Germania* 1932, XVI, 129-33.

The author figures a hoard of barber's tools from a 3rd-4th century grave. They include a razor, various small knives, a pair of depilatory tweezers and two iron knives, which he shows to have been used by Roman hair-dressers instead of scissors. C.E.S.

The excavation of a barrow on Caebetin Hill, Kerry, Montgomeryshire, by H. Noel Jerman. *Montgom. Collections*, Welshpool, 1932, 176-181.

A complete circle of post-holes was found surrounding the barrow.

La civilisation mégalithique au Maroc, par le père Henry Kæbler. *Bull. Soc. préh. franç.* Sept. 1932, XXIX, 413-20.

Le paléolithique ancien en Europe occidentale et sa chronologie, par l'Abbé H. Breuil. *Ibid.* Dec. 1932, 570-78.

The prehistoric settlement of Northern Norway, by A. W. Brøgger. *Bergens Museums Årbok* 1932: *historisk-antikvarisk rekke*, nr. 2.

Report of the excavations at Hembury Fort, Devon; second season, 1931; by Dorothy M. Liddell. *Proc. Devon Arch. Exploration Soc.* 1931, pp. 90-120.

A careful and detailed account of a thoroughly well-conducted excavation. The line illustrations (by Mr Gurd and Mrs Woods) are admirable, but the half-tone illustrations are of poor quality.

Salt-ways, by F. T. S. Houghton. *Trans. Birmingham Arch. Soc.* 1929-30, LIV. [Separate pagination].

A valuable reconstruction (based upon evidence) of old tracks that may be of very great antiquity.

Le paléolithique ancien en Europe occidentale et sa chronologie; conférence faite le 12 Novembre 1930 par l'Abbé Breuil. *Bull. de l'Académie nationale de Peiping*, Jan. 1932, vol. III, no. 1.

This is a lecture delivered at Peking; it gives a very useful and authoritative summary of the Palaeolithic period as a whole, in non-technical language.

Dr Hermann Schneider's philosophy of history, by Professor J. L. Myres. *History*, Jan. 1933, N.S., XVII, 303-16.

Professor Myres effectively disposes of yet another cumbersome theory of history.

Proceedings of the Spelaeological Society, University of Bristol, vol. IV, no. 2, published February 1933. 7s 6d.

These Proceedings continue to improve, though there is still room for improvement in format. For instance much space is wasted (and unnecessary expense

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incurred) by putting short notes on a full page. (A glaring example is seen on p. 155). Why not make such run consecutively as NOTES? But the use of two colours in the plans cannot be commended too highly. Sixty-one pages are occupied by the second report on the Tynings barrow group. A short account by Dr Herbert Taylor of a beaker in a cist (not, we think 'cyst') at Corston, shows the valuable work done by the Society in making a full record at the time of an accidental discovery which would otherwise have been lost. Mr C. W. Phillips' paper on 'Field Work' contains three plans in red and black of lynchet-groups, including the very fine series in Ashton Park, where Celtic and strip-lynchets both occur.

O.G.S.C.

We have received a paper-covered book of 89 pages entitled *SBORNIK NEESJNE VOLSJKOVO KRAEVOVO MUSEYA*, and attach a summary of its contents, kindly supplied by one of our original subscribers:—

The Lower Volga District Museum is presumably at Saratov. The preface to this volume deals with the importance of museum-collections illustrating the struggles of earlier races, with especial reference to Socialist and anti-religious ideas.

A notice of the life of Professor B. M. Sokolov (d. 1930), the first Director of the Museum, and of his work on behalf of Soviet Russia, and a list of his written works, to the number of 90, are given.

Notes on recent fetish worship by a Saratov tribe called 'Choovash'. These 'fetishes' were made of lime tree branches, dressed in national costume, usually as a woman, but sometimes as a man or child. Various properties were attributed to them up to comparatively recent times, and examples are to be seen in the museum.

The graves of the Morduates, a race of Tartar-Finns, settled on the Lower Volga in the 17th and 18th centuries, are described, with particulars as to the ornaments, coins, beads, etc., found in them. Differences among tribes are discussed, and the subject is illustrated from articles in the museum.

Description of burials and finds in graves, etc. of the Sarmatian Kurgans, in northern regions of the Lower Volga about the 2nd or 3rd century A.D. Excavations made in 1930. Draws conclusions favourable to the Socialist state of an early pastoral tribe.

Finds of remains of post-Tertiary animals in the Lower Volga district. The island of Horoshenki, opposite Alexieff wharf, is particularly rich, and a list (in Latin) is given. The writer of this chapter considers that these finds and all they imply, have not been sufficiently studied by archaeologists. He says:—'suitably elevated places, absence of the later (post-cretaceous) deposits, abundant glacial and post glacial fauna, and finally complete absence of ice erosion—these are the fundamental conditions which must compel one, it is thought, to seek Palaeolithic man, if anywhere, in the neighbourhood of Hvalinsky'.

The volume concludes with notes on the most suitable photographic apparatus for museum and archaeological purposes.

E.A.M.

Reviews

THE PERSONALITY OF BRITAIN: its influence on inhabitant and invader in prehistoric and early historic times. By CYRIL FOX, PH.D., F.S.A. *Published by the National Museum of Wales and by the Press Board of the University of Wales, 1932. pp. 84, with numerous figures and maps. 2s 10½d post free.*

The science of archaeology might well be defined as the study of the past distribution of culture-traits in time and space, and of the factors governing their distribution. For the plotting of extinct cultures in space-time the cartographic method, of which Dr Fox has here given so masterly a demonstration, is of the utmost value both for popular exposition and as an engine of research. An archaeological distribution-map not only exploits the most basic and common quality of all antiquities, *viz.* their geographical position, but by its very existence implies the co-ordination of scattered evidences and the establishment of a synthetic relation with their geographical background. Such a map does more than merely define the horizontal space qualities of a given trait or culture, it often gives the key to its own explanation. The visual argument, whether conveyed by an illustration, a map or a section, is (or certainly should be) the most potent in archaeological research or exposition.

To anyone who doubts the value of the distribution-map the reviewer can prescribe with confidence this work of Dr Fox's, furnished as it is with some of the most striking examples we have. By these maps, which reflect an important aspect of much of the known archaeological material of these islands from the Neolithic to the Anglo-Saxon period, the author is able to demonstrate in a peculiarly forceful and convincing way some of the main physical factors which conditioned human settlement in our prehistory. He shows how the broad outlines of our cultural history have been influenced by the geographical position of the British Isles in relation to the Continent and to the routes of trade and migration of prehistoric Europe. Perhaps the most striking of the examples which he quotes is the predominantly western distribution of megalithic culture in the British Isles, contrasting with the essentially eastern distribution of the Beaker cultures. Secondly he demonstrates the control exercised by the geological structure of the country upon such invasive cultures. Thus he distinguishes two main zones, the Highland zone of older rocks, and the Lowland zone of younger rocks, the former tending ever to absorb the alien influences which impose themselves upon the latter.

The value of this extensive view, of which Dr Fox is one of the foremost champions, must not blind us to the limitations of the geographical method when employed too naively. The archaeology of the British Isles has been worked out far more intensively for some areas than for others, and again the discovery of the objects from which distribution-maps are prepared has resulted in all too many cases from some economic activity, which is itself rigidly controlled by geology. These are factors for which allowance must be made especially in the interpretation of regional-surveys, but which have not in practice seriously impaired the value of the map method when applied to the country as a whole.

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There is, however, a far more serious danger implicit in the use of maps which has not in the past always been fully appreciated by archaeologists. The point I wish to make is that, in so far as archaeological distributions are determined by geographical factors, they are determined *by the contemporary and not by the present* geographical environment.* But geographical environment is no more static than climate or plant life! In so far as there has been geographical change since the period with which he is immediately dealing, the archaeologist who assumes the present state of affairs as a background for his map is thereby vitiating the very basis of his evidence. It may be said at once that the degree of error varies greatly so as to be negligible in the case for instance of a chalk or limestone area at a fair altitude, but so as to be of overwhelming importance in the case of a low-lying region like the Fenland, especially when in proximity to the sea. In such a region as this it is not geography but palaeo-geography or geology, not horizontal but vertical space-distribution which becomes of foremost importance. The superficial geographical method will work only where geological change has not been active into relatively recent times.

But this factor of the transience of any given geographical environment is not confined in its significance to surveys of a regional character. It is fundamental to the broader issue of the relation of the British Isles to the Continent. For it must be clear that the factor of land-movement alone has at various periods either modified or completely eliminated that insularity of ours upon which geographers and politicians set so much store. Dr Fox has not been blind to the significance of this but it must be said with all deference that his paragraphs on changes of land-level and the inferences drawn therefrom (pp. 22-4) are open to severe criticism. Unless we are much mistaken there is an over-simplification or misunderstanding of the evidence which affects his inference rather seriously and in any case is liable to mislead his readers. To take an example, the statement on p. 23 that 'there is evidence that peat *began* to grow on the fenlands of East Anglia . . . which were formerly habitable in the Bronze Age' is quite misleading. The evidence cited by reference in support of this consists of no more than a few unscientific records of finds made 'under peat' and so on, the inference being that there is only one peat in the region. Yet away back in the seventies Skertchley's work showed that the problem was far more complex. Recent work indeed by the Fenland Research Committee has demonstrated the presence in parts of the fens of Late Boreal peats, comparable with the North Sea 'moorlog', and the Skipsea peat (see H. and M. E. Godwin, *ANTIQUITY*, March 1933, p. 36), both associated with Mesolithic harpoons. This period of land elevation, corresponding with the Ancylus-lake phase of the Baltic which permitted the easy incoming of fisher-folk of Maglemose-Kunda affinities to southeastern Britain, was succeeded by the depression of Atlantic time, corresponding with the Littorina-sea phase of the Baltic, and indicated in the Fenland by the drowning of old river channels and the deposition of semi-marine silts. During this Atlantic period, as Swedish workers have shown, the land not only sank in relation to the sea as compared with the preceding Boreal period, but was actually considerably lower than is now the case. Since in Boreal times the southeast of Britain seems to have behaved in a similar fashion to the Baltic regions, the inference is that it acted similarly in the succeeding Atlantic period, and this is supported by the evidence accumulating in the Fenland. Furthermore, there is evidence for a slight re-elevation in sub-Boreal times, again in

* The necessity for reconstructing the geographical environment of any given period was pointed out in *Man and His Past* (Oxford, 1921), pp. 93ff.—EDITOR.

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sympathy with the Baltic area, when river-channels were re-cut in the fens. It is to this period that the Neolithic and Beaker habitation of the submerged Essex coast is referable. In the Cambridgeshire fens this was in turn succeeded by a period of peat formation and it is in the base of *this* peat, found on the surface over wide areas, that the Early Bronze Age horizon is to be found. The post-glacial history of Britain is not therefore so simple as Dr Fox seems to imply; and the Atlantic depression which affected the south-east of Britain is seen to separate the Boreal and sub-Boreal phases of land elevation, which he confuses as one. Contemplating the post-glacial history of this part of Britain, so important in any consideration of the formation of the British Channel, in the light of this evidence of oscillation we do not feel happy about Dr Fox's implication that the Channel was non-existent at so late a period as the Neolithic. It seems to us more likely that if not cut in the pre-Boreal or Yoldia period of land depression it must then have been formed in Atlantic times, and once formed the operation of tides would ensure its permanence, short of land elevation of catastrophic proportions. J. G. D. CLARK.

BYZANTINE CIVILIZATION. By STEVEN RUNCIMAN. *Edward Arnold*, 1933.
pp. 320. 16s.

This is an interesting contribution to Byzantine research. Nor does it pretend to be anything else. The author has written twelve studies in Byzantine culture and history and made in effect a most useful and admirable handbook. His chapters vary in quality and interest. The first is concerned with history. As such it is difficult to read because of its compression, nor does this compression tempt the author into any pungency of style or brevity of statement: frankly the one dull chapter. The section on the administration of the Byzantine Empire is more interesting and is clearly the result of wide research, and the section on the Diplomatic Service is illuminating in its exposition of the subtlety and skill of Byzantine negotiations with foreign powers. The author quotes the saying of Constantine VII that there were three things which a foreigner should never be given—'a crown, the secret of Greek Fire and the hand of a purple-born Princess'; and the precept was rarely disregarded.

In his discussion on commerce the author gives us some important facts and judgments. The prosperity of Byzantine commerce was said by Cosmas the Sailor of the Indies to be due to Christianity on the one hand and to a standard coinage on the other. By Christianity he probably meant merely prestige, and was cynical enough to say so; but it is interesting to see Christianity serving as a trade commodity. What Cosmas was hinting at also, is that Byzantine civilization implied certain valuable qualities in which every citizen of the empire partook. Those were more numerous than he mentions. Sound administration and a certainty of justice; a common quality of citizenship which is briefly summarized as 'Christianity'; a careful control of internal production so that every citizen was interested in the promotion of trade, and a complete absence of hereditary claims to distinction. These were qualities which made Byzantine citizenship worth having and the barbarians with whom Byzantium traded were therefore envious enough to feel privileged to engage in commerce with such an enlightened land. The last factor, the absence of mere family claims to power or riches, was the most democratic of Byzantine customs. As the author says, 'Education not birth gave the entrée to Byzantine society'. But even the modicum of intellectual snobbery implied in such an outlook did not discourage them from selecting exactly what they wanted from the culture of their neighbours. 'They were passionately interested and inquisitive about the affairs of

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their neighbours and were willing to borrow from the lore of the Arabs and the recreations of the West'. Little wonder that Byzantium constituted a centre of culture and comfort and wealth such as the world has not seen before or since. For on this basis they suffered from none of the economic ills so prevalent today, nor from the violent contrasts of class. There was too much of the ancient Greek still in their blood for them to tolerate the social and economic systems of ancient Rome. They still lived like an ancient City State, but with a population of a million within the mighty walls of their city.

So in war their strength consisted in adapting their methods and arms to the particular enemy who faced them. Their main principle was never to take the offensive except in counter attack and to employ every device besides military measures with which to outwit the enemy. Here again was a contrast with the flashing legions of Rome, and yet the Byzantine Empire was both greater and more cultured than the Roman, for it was an empire founded on intelligence and established for the benefit of the citizens.

But envious neighbours made this tremendous attempt at civilization both dangerous and difficult. The 8th and 9th centuries saw an almost continuous siege of this Utopia. Every Byzantine citizen of Constantinople in the 8th century was ordered to keep with him provisions to last three years. And culture and the finer emotions do not fructify under such a psychological strain. No wonder that the Byzantine was at times cruel and always a cynic. The charges of barbarism and cruelty so often made against him must be understood in the light of these facts. He was in a perpetual state of war. His outlook was always what our own was in say 1917 and 1918, with the same strain and the same outbursts of hysteria. Yet the Byzantine Empire stood for eleven centuries and ours is already rocking to its foundations. For the Byzantine had enormous energy and stamina aided by wit and intelligence. When his city fell the world fell with it.

Mr Runciman has done well to make so much material easily accessible. His chapters on Byzantine art and literature are, as he admits, too brief for the subject. They had been better omitted.

The following errors are noted. Anaximander is strangely assigned to the 4th century B.C. (p. 235); 'Steactite' for steatite (pp. 257, 264); 'Skiprou' for Skripou (p. 261; 'more unique' (p. 262); the Barletta statue was not 'carved', it is of bronze (p. 264); the Romanus and Eudocia panel is stated to be in both the Louvre and the Cabinet de Médailles, it cannot be in both (p. 265); 'Chalcondylas' for Chalcocondylas, (p. 268). This is a large list for so small a volume.

Seeing that there are no illustrations and no type other than Latin is employed for the text the price of this book is high.

STANLEY CASSON.

AN INVENTORY OF OBJECTS OF ROMAN AND PROVINCIAL ORIGIN

found on sites in Scotland not definitely associated with Roman constructions.

By JAMES CURLE, LL.D., F.S.A. SCOT., F.S.A. *Procs. Society of Antiquaries of Scotland*, vol. LXVI, 1931-32, pp. 277-397.

If each nation has its own way of treating its Roman antiquities, Scotland's glory must be her chroniclers. We already have General Roy's *Military Antiquities*, David Christison's surveys of hill-forts, Dr Curle's own list of native objects from Roman sites, and Sir George Macdonald's catalogues of Roman coin-finds. Now follows Dr Curle's second contribution, a valuable list of objects of Roman provenience, found dissociated from Roman sites. Side by side with these products of workroom and museum go the excavation-campaigns which have, to quote Dr Curle, 'recovered the

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skeleton of the occupation * of Scotland by Roman troops. All these activities have an intimate methodological connexion, because they round off, effectively and almost finally, one line of treatment of the problems which that occupation presents. The making of catalogues cannot be pushed further: the excavation-campaigns can and must be supplemented in detail, but the framework of the story revealed will not require substantial reconstruction. The foundations so well laid are now set firm; and the method of laying them deserves the attention of all students of archaeology because it succeeded better and exhibits fewer inherent faults than any other pioneer's work on Roman military antiquities. This fact is too little appreciated, even by English archaeologists.

But every advance in knowledge contains within itself the germs of further development. Out of Dr Curle's inventory of ninety-nine objects, forty-five come from native sites that have been excavated, if with varied skill. Of these (we give their numbers because Dr Curle does not), twelve are brochs (1, 26, 78, 80-87, 92), eleven are hill-forts (4, 13, 15, 18, 25, 38, 42, 44, 61-63), eight are crannogs (33, 34, 37, 39, 45-47, 51), seven are souterrains (66, 68, 69-71, 89, 91) and seven are caves (9, 11, 35, 55-57, 75); and we wish that they had been differentiated on the map. But every souterrain, all brochs but two obvious intrusions, and the last three of the hill-forts and caves lie beyond the Antonine Vallum. Thus, the first thing that this list emphasizes is the need for selective excavation of the hill-forts. One is glad to see that this has begun. Three of the hill-fort excavations belong to the last two years, and the new development is already under way. The need is urgent. It is self-evident that only an understanding of the native conditions can explain the reason, not so much for the experimental Agricolaan occupation, as for the systematic reoccupations under the Antonines, who three times in half a century attempted to control the Lowlands in a 'strait-waistcoat' frontier, which, excepting west Cumberland, was an improved copy of Hadrian's Wall, its arterial feeder-routes and its advanced posts. Why did the Romans consider it imperative to do this, and by what miscalculation did the scheme that succeeded so well on Tyne and Solway fail on the Forth and Clyde? At the moment, no adequate evidence is to hand. But the other side of the story is suggested by the finds of *paterae*. These are peculiarly plentiful in Scotland, and since they formed, with metal cook-pots, a standard article of soldier's kit (Cichorius, *Trajan's Column*, scene v), the inference that they mark native successes is obvious. Some belong to the 1st century, in dealing with which we miss Haverfield's article on early inscribed examples (*Arch. Journal*, XLIX, 228-231), but many, especially in hoards, belong to the 2nd century, when the struggle was more intense.

Another interesting point which emerges is the distribution of certain types of dwelling, crannogs in southwest Scotland and souterrains in Angus. Both must have a story to tell, Angus perhaps in relation to Herodian's estimate of Caledonian habits; while the fact that in southwest Scotland habitations extend only along the coast and the hinterland is empty, of both intensively inhabited sites and stray loot, might elucidate Agricola's neglect of the southwest.

On the north also, the map appears to clear up some dark points about the Roman policy. It now becomes evident that Ptolemy's *Caledonia silva* was impenetrable, and governed Roman frontier organization in exactly the same way as the Hercynian forest dictated it in Central Europe. Between the forest and the natural boundary—here the Forth-Clyde isthmus, there the Danube—the buffer-tribes were subjected to a loose control. Tribes beyond the forest did not interest the Government: but indefatigable merchants got there, just as in Central Europe; thus the broch-folk received their wares, if irregularly, and mostly by sea.

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This is the general picture of Roman Scotland that Dr Curle's inventory suggests. But the minor points deserve equal attention. The author's skill in dealing with small objects needs no advertisement. We admire the section on painted glass cups and playing-men (291-6) and on enamelled *paterae* (302-6) as examples of his work at its best. But the section on the preparation of native drinks (307-13) must head the list: Dr Curle has never done better than this. As a parallel to the chain-mail from Carlingwark, that from the Lexden tumulus, Colchester, is worth quoting. About this point in the text a reference to the Hallguards purse is missing, and it is perhaps worth note that not only does the angle of the Milsington bronze leg suggest an equestrian statue (325, fig. 27), but the foot was never fastened to a base and the heel has a hole bored for fastening a spur. In connexion with frontier commerce, the evidence for the regulation of markets might have been quoted (Tac. *Germania*, c. 41, *Histories*, iv, 64); and the gateway at Knag Burn is a single entrance with two doors and central doorway (MacIauchlan, *Memoir*, p. 93 and plan) between the guard-chambers; a rare type for its age, but paralleled at Malton. Demetrius of Tarsus was not merely an 'early Greek voyager', but accompanied an Imperial expedition. We do admire Dr Curle's englightening of what he saw, but wish that he had mentioned the long list of Scottish isles in the Ravenna Cosmography, as proving Roman knowledge about them; indeed, no survey of native conditions is complete without an estimate of what that document says. For the present high value of Scotch pearls (347) we would like to cite Professor Ritchie of Aberdeen (quoted by J. D. U. Ward, in *Countryman*, July 1932, p. 367); and apologise for not remembering until now *Collectanea Antiqua*, III, pp. 91-99, where a young seal-skin figures among presents from a British governor in A.D. 238. The capacity-measurements of the Dowalton *patera* are worth equating with Roman units, and work out as follows: the unit is the *cyathus* (Marquadt, *Staatsverwaltung*, II, 76) of 44.75cc., and the multiples of it work out at 7, 8, 14, 14, 16, 12 and 12 *cyathi* respectively, the unit of one dozen being equal to the *sextorius* and the whole capacity being 79 *cyathi*. The greatest error is four per cent.

Misprints are few. We have noted *Enforschung* (313) and Epahroditus (372). The drawings of the Samian are in a tradition now confined to Scotland, which we cannot pretend to like. The map requires some slight correction. Gilnockie is a marching-camp and Burnswark is not. Castle Greg was more than temporary; and Carpow has a special convention to itself, whose meaning is unexplained. Further south, the road to Bewcastle is sound, with a signal-station on it, at Gillalees; Great Chesters is not so near Carvoran and the last letter of 'Chesterholme' is superfluous. Lastly, who will break the border convention, and bring 'Roman Scotland' up to Hadrian's Wall? The absence of the material between Tyne and Tweed is not only deplorable, but a real defect.

I. A. RICHMOND.

NOTES ON THE ROMAN FORTS AT OLD KILPATRICK AND CROY HILL, AND ON A RELIEF OF JUPITER DOLICHENUS. By SIR GEORGE MACDONALD, K.C.B. Reprinted from the *Proceedings of the Society of Antiquaries of Scotland*, 1931-2, pp. 219-76.

This overprint contains an account of work done by Sir George Macdonald at two forts on the Antonine *Limes*. Old Kilpatrick had been dug by Mr S. N. Miller in 1923-4, and Sir George himself in 1920 had done enough digging at Croy to prove

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that there was a fort there. But these papers amplify and to some extent correct our knowledge in a remarkable way.

The conditions under which Old Kilpatrick was originally dug were as unfortunate as any that an excavator can meet. A town-planning scheme dogged Mr Miller's footsteps. He was forced to lay trenches when and where he could, and thus the results gained were to some extent less satisfactory than they might have been. A feature of the Report was the suggestion that a 'harbour-enclosure' had been built at Old Kilpatrick prior to the construction of the fort: this enclosure, it was suggested would secure the convoy of troops and building material for the *Limes*. Sir George Macdonald had already pointed out the difficulties which were raised by this theory; he doubted whether the Clyde was navigable in ancient times as far as Old Kilpatrick, and this point he now succeeds in demonstrating by a painstaking research among documents of the last three centuries.

But there is more than destructive criticism here. Sir George was fortunately able to do some excavation on land which was inaccessible to Mr Miller; and while taking account of his predecessor's difficulties, he makes the remains tell a new and remarkable story. The fort and the Antonine Wall, he shows, were constructed by different parties, and as the wall-builders started at the eastern end, the fort was completed before they arrived. But its builders had proceeded in a strangely unintelligent way. They first dug their ditches without any regard to the line imposed on the Wall by the lie of the ground: they then remodelled them in such a manner as to lead the Wall up to the fort in the middle of its north wall, and they had commenced to dig a length of wall-ditch on this undesirable alignment. The wall-builders, when they arrived, filled up the abortive wall-ditch and took the Wall up to its proper point of junction at the northeast corner of the fort. A similar lack of co-ordination is revealed by the lay-out of the Military Way. The story is a strange one, but it is established by a really wonderful process of archaeological inference, subtle and profound, yet absolutely certain.

Furthermore, examination of the length of wall running down from the fort to the river leads the author to revive an old theory of Horsley's—that the Military Way was prolonged beyond the end of the wall. He takes it, in fact to Dumbarton where there have always been adequate harbour facilities. But at some period in the history of the *Limes* this extension was closed and Sir George Macdonald offers the suggestion that the Irish pirates were already making sea-communications unsafe. His case may be indeed stronger than he recognizes, for the Irish annals assign the first invasion of Scotland by the Ulstermen to a date within this very period.

Space forbids us to say much of the discoveries at Croy Hill. Reconnaissance rather than complete excavation was the aim; yet the results are very full and interesting. The size of the Antonine fort was made out; it is small—an acre and a half—about the size of Rough Castle. The exterior bath-building was located, and a mysterious pit—perhaps a well—beneath the northwest angle-tower was dug out. But most interesting was the discovery of an Agricola fort on the site. It was about the size of the Agricola fort at Bar Hill, and had, like it, an annexe. Curious features were its shallow palisade trench and absence of ditch.

During the excavations at Croy Hill a fragment of a sculptured stone was found with part of an inscription to Jupiter Dolichenus. The author discusses it in the third paper, and with the aid of continental parallels he is able to assign it to a rare type in which Jupiter on his bull is accompanied by a female consort.

C. E. STEVENS.

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THE GREAT WALL OF HADRIAN IN ROMAN TIMES. By PAUL BROWN. With drawings, plans, and oddments by the Author and Constance Whyte. And a foreword by PARKER BREWIS, M.A., F.S.A., and ERIC BIRLEY, M.A., F.S.A. pp. 162. With 4 plates, various plans and diagrams and 29 drawings in the text. Heath Cranton, 1932. 5s.

That the public is interested in Hadrian's Wall is apparent to anyone who sees the row of cars drawn up at the footpath to Housesteads fort. It is to this public that Mr Brown offers his book. With the aid of archaeological material its aim is to reconstruct the buildings of the Wall and the life that was led in and around them. The book is not intended for specialists; yet the specialist can read it with advantage, and the name of its sponsors, Mr Brewis and Mr Birley, guarantee its historical accuracy. The pencil aids the pen in recalling to us the Wall as it was: there are reconstructions of typical forts as Housesteads and Chesters, of milecastles and turrets, while inset drawings are given of tombstones, altars, fibulae and the like. The reconstructions are good and valuable but the inset drawings are far too small and smudgy. And a book which is meant to be taken on the Wall ought surely to have a map.

This is a useful and desirable book which deserves the second edition that it will pretty certainly get; so it seems worth while to notice a few mis-spellings and mis-statements. I have observed *Liniam* in the preface, *Platorious* (p. 25), *Clarantinus* (p. 46), *Balista* regularly, *Mythic* and *Mythras* (p. 93). The Vexillation that did quarrying work at the Gelt was certainly not a Vexillation of Auxiliaries, and the inscription cited by Mr Brown shows as much; Mithras was not worshipped with human sacrifice; Birdoswald fort is not a Cavalry fort, and did anyone ever suggest that the Turf-Wall was Severan?

Finally there are two mis-statements a little more serious. Mr Brown asks whether the purpose of the Wall was achieved or not, and he advances an argument on either side: but neither of them is decisive and neither of them is correct. It is misleading to assert that the wall-ditch is unfinished, for it is nowhere absent except where natural conditions render it unnecessary; and when Mr Brown declares that 'the tenaciously held idea of hordes of natives being unable to withstand the disciplined Romans' has been overthrown by archaeology, he is inverting the facts. Bruce and the older writers were quite prepared to believe in these continual defeats of the garrison; it is archaeology that tells how only in the 'barbarica conspiratio' of 367 was the Wall taken in fair fight. When it was sacked at other times, its garrison was away.

C. E. STEVENS.

THE EARLY AGE OF GREECE. By WILLIAM RIDGEWAY. Vol. II, edited by A. S. F. GOW and D. S. ROBERTSON. Cambridge University Press, 1931. pp. XXVIII, 747, and 158 illustrations. 30s.

It would be difficult to understand the importance of this volume, now posthumously published, without a consideration of the discoveries in Aegean archaeology which have been made since Ridgeway first published his main thesis upon the Mycenaean world in 1896. Mr Wace's excellent introduction both summarizes the progress of discovery and estimates the permanent elements in Ridgeway's work. What emerges is that Ridgeway, with the foresight of genius aided by a balanced view of evidence rarely met with, laid the real foundations of what are now the current views generally accepted upon the position of Mycenaean culture in the ancient world and its relation to the civilization depicted in Homer.

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Ridgeway was the first to make a clear distinction between the Mycenaean world as such, which he claimed was essentially indigenous, and the changed character in it which was brought about by Achaean intervention and infusion. That he was the first to claim that Greek had been spoken when the Mycenaean world first began to differentiate itself from mere barbarism was, when he postulated it, a heresy of the first rank. A heresy it remained until very recent times, and only in the last ten years has the learned world begun to agree with some appearance of unanimity that the inhabitants of Greece from about 2000 B.C. were of Greek stock and spoke some primitive form of the Greek language. Ridgeway's first contribution, that did more than any other to clear the air for further research, was his firm decision that the Mycenaean world as revealed by Schliemann could not possibly be equated with the world of the Homeric Achaeans. His further thesis that Achaeans were actually of a stock which it is difficult to differentiate from Celtic is also beginning to receive some semblance of acceptance. The most recent views indeed on the distribution and chronology of bronze swords of the type which entered Britain and Ireland soon after 1000 B.C., make it difficult to deny that the general European diffusion of the culture which they represent does in fact correspond to some kind of Celtic diffusion from central Europe.

The homogeneity of Mycenaean culture based on a purely mainland origin was another development of research which has its springs in Ridgeway's main theories. Most excavators of Greece now agree on a view which is no different from that which he formulated, and the minor divergence between those who would attribute more Cretan influence and those who would decry its importance in mainland development is a dispute which is a necessary development from Ridgeway's theory, rather than a contradiction of it. Nor is it an antithesis which affects the main issue.

To Ridgeway and to no one else must be given the credit for clearing the air of absurd theories as well as for laying down main outlines which would help later scholars. That the culture found by Schliemann could have been considered, as it was at the time of its discovery, as Hellenic of the First Olympiad (as A. S. Murray maintained), as purely Achaean or Homeric as Schliemann thought, or as barbarian Gothic, as was maintained by some ultimate back-benchers, showed clearly enough that an impartial mind endowed with a fine sense of evidence should at once attempt to clear away the cobwebs. It is difficult now to realize the real service which Ridgeway rendered in this, nor is it as clearly realized that Ridgeway enjoyed the supreme merit of seeing his views (which after all were mainly formulated in the study) largely supported by the independent discoveries of successive generations of excavators.

This second volume contains naturally much that is out of date and much that is superfluous, now that the smoke of earlier battles has blown away. But the reader should rather concentrate on those matters in which it has contributed directly to later beliefs. What Ridgeway proposed as theory is now largely knowledge. His insistence on the importance of the Danube basin to any knowledge of Bronze Age Greece, and of a certain community of style and outlook in European Bronze Age culture with that of the Mycenaeans, had not indeed received the full illustration that it deserved until Prof. Childe and Prof. Vasile Parvan gave the facts which suffice to illustrate the community in question. Ridgeway's perpetual delving into Irish and British archaeology to illustrate his broader views on European connexions with Greece are explained by the fact that, when he wrote, the material nearer the centre of observation was simply not available. Subsequent Danubian research does nothing to detract from his main views. The Achaeans must be looked for in the regions from which he believed them to come, and

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every fresh discovery in Hungary or Transylvania merely emphasizes the correctness of his far-sightedness.

Ridgeway's views on the Iron Age have, since he wrote, been considerably modified by later research, and considerable advance has been made in recent years in the matter of proto-Hellenic discovery. On the Pelasgians too his views were unsatisfactory, but it must be admitted that the term Pelasgian means no more and no less than when he first made it into an archaeological term.

The first volume dealt with the solid material facts which he used to support his theories. The second volume brings into play the anthropological and sociological arguments and concludes with a deeply interesting study of the Heroic Age in Ireland, in which he draws invaluable comparisons between Celtic and Achaean modes of life.

The editors are indeed to be congratulated upon publishing the conclusion of a great work which has done more to clarify the whole problem of the pre-Hellenic world than the work of any other scholar.

S. CASSON.

PALÉOPATHOLOGIE ET PATHOLOGIE COMPARATIVE. By DR LÉON PALES. *Paris: Masson et Cie., 1930. pp. vii, 352, with 63 plates. 120 fr.*

The beginnings of palaeopathology date back about 150 years, the earliest observations being those of Jean-Frédéric Esper in 1774. During the first 100 years quaternary fauna formed the main subject of study; from 1870 to 1900 attention was focused on injuries of the human skeleton and the problem of the origin of syphilis; during the present century the study has turned more especially towards the infections and the evidences of prehistoric therapeutics and surgery. The vast material accumulated as the result of these researches consists of specimens exhibiting pathological changes the nature of which is in some instances recognized without difficulty—for example, fractured bones showing evidences of vital reaction and healing. On the other hand there are numerous specimens, mostly exhibiting marks of acute or chronic inflammation, the exact nature of which is difficult to determine or is open to more than one interpretation. Much of the literature is concerned with the discussion of these difficult cases, inducing a tendency to rivet attention on particular specimens or particular diseases rather than on a general survey of the subject. The material now accumulated is, however, sufficient in amount and variety to enable a fairly comprehensive survey to be made of the diseases incident to the ancient races. Dr Pales has made the attempt in his book, and it is, apparently, the first of its kind that can lay claim to any great degree of completeness. He has drawn up a list of recognized modern affections of the skeleton, to which, naturally, the subject is almost entirely limited, and with the aid of a critical examination of records and existing specimens has endeavoured to show how far each class of disease is represented in ancient remains. His classification includes malformations, nutritional changes of various kinds, injuries, affections of the teeth, osteo- and rheumatoid-arthritis, myositis ossificans, non-specific infections, syphilis, tubercle, osteoporosis, and various types of tumour-formation. The grouping of existing observations under these headings has involved the analysis of nearly 700 publications, besides the personal examination of collections, and although in a work of this magnitude omissions are almost inevitable, they will probably be found to be few in number. It may be of interest to mention here that a specimen of the bones of the foot dating from the 26th dynasty and exhibiting the characteristic changes caused by mycetoma (a disease not included by Dr Pales, and akin to actinomycosis) is preserved in the collection of the Royal College of Surgeons, London. The matters discussed under the above-named headings relate to the discovery

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of the specimens and to the opinions of authors in cases of doubtful interpretation. Thus, as a review of work already achieved, the treatment of the subject is mainly historical but in some instances causation is also discussed, as in the varying distribution of disease of the temporo-maxillary joint and its relation to manner of eating. Due consideration is given to the important question of chronology, the three classes of fossils, Egyptian specimens, and pre-Columbian remains being separately dealt with in discussing the matters referred to. Dr Pales's book will certainly prove of value as a work of reference on points relating to the present position of the science of palaeopathology, and it contains a very interesting résumé of the history of the science and an extensive and apparently complete bibliography. The work, it should be explained, is in no sense descriptive of the diseases dealt with, as is the case in ordinary textbooks on pathology, and is not designed to give instruction in the diagnosis of the various pathological conditions that are met with.

T. W. P. LAWRENCE.

THE MESOLITHIC AGE IN BRITAIN. By J. G. D. CLARK. *Cambridge University Press*, 1932. pp. XXIII, 223, with 2 maps and 60 figures. 15s.

Archaeological interest at the present time is centred in the Mesolithic Age. We may therefore congratulate Mr Clark on giving us a connected account of the relevant finds relating to England; as yet this has been done for no other country. The author first explains the technical terms (pp. XIII-XXIII), and then in his Introduction considers the problem of naming the 'Mesolithic' Age, concluding that this is still its most fitting title. But, as Breuil has observed, from the commonsense point of view the term 'Mesolithic' really applies best to the Upper Palaeolithic Age, and in fact only tradition prevented him from proposing a change in the accepted terminology. If, as Mr Clark himself admits, the 'Mesolithic' cultures are the 'heirs' of the Upper Palaeolithic, then it is scarcely apposite to bracket them together by a name which would appear to give them an equal value, as a phase of human development, with the Lower Palaeolithic, Upper Palaeolithic and Neolithic cultures. I do not dispute that there is a definite cleavage between the Upper Palaeolithic Age proper and the 'Mesolithic'; but, as has been established more clearly since the appearance of my book on the Stone Age, this view is based primarily on the fact that the first Neolithic forms emerge as members of the 'Mesolithic' cultures, in particular that of the polished axe, which is now established at a station at Göteborg as having definite early Mesolithic relationships. On these grounds it appears to me only right to apply the term 'Epipalaeolithic' (or 'Epimolithic', on the proposed terminology of my book) to the 'Mesolithic' Age.

Chapter 1 reviews briefly the Mesolithic period in Europe, in which account the author follows in essentials my suggested divisions. Anthropological questions follow. Mr Clark is perfectly correct in stating (p. 12) that I connect the Mughem men with the Grimaldi and Bushman types, treating them as pygmoid (not as pygmies). But in that I do not differ from Boule, who holds that the Mughem peoples are proto-Mediterranean. For I believe also that there is a close connexion between the Epipalaeolithic dwarfish folk of the Mediterranean basin and the Mediterranean race (v. 'Weltgeschichte der Steinzeit', p. 589). In chapter 2 there is a short description of the Axilian and Maglemosian finds in England, already treated at length by Miss Garrod in her book. Chapters 3-5 form the body of the book, with their notable account of the English microlithic finds. The author divides them into two main groups, according as they are outside the influence of axe-culture or are influenced by it. The latter group is confined to a belt in southeast England, somewhat eastwards of a line from the Isle of Wight to the

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Wash. Mr Clark further separates from this belt a district roughly south of the Thames and east of a line from Portsmouth to Reading.

According to Mr Clark, the cultural groups which developed outside England were, as a rule, not long in reaching it, yet their development in England was usually localized, owing to its insular isolation. This can be proved for the Azilian period, but is still clearer in the case of the microlithic cultures with their very rich remains. The earliest of these appears to be a facies which corresponds to the Zonhoven culture of Belgium. The author agrees with the Brussels school in viewing this culture as early Tardenoisian; but I prefer the Liège theory which regards it as a transition from Magdalenian to early Tardenoisian. The Zonhoven culture was followed by influxes of Tardenoisian (Mr Clark speaks of 'middle' Tardenoisian, but 'early' would suit my view better); these first brought geometric flints to England. A late Tardenoisian culture developed locally, closely connected with older native elements, which is distinguished from the continental type by the rarity of trapezoid flints. The absence of a late Tardenoisian period with geometric types is particularly noticeable in the belt south of the Thames. Its place was taken by an industry with microlithic points and axes, whose edge is produced by tranchet blows. Tranchets, picks, and certain other types betray Campignian influence, which must go back to a comparatively early period. Mr Clark considers that there is no evidence of pure Campignian in England. Here I note no mention of Mr R. E. Nicholas' book *Record of a prehistoric industry in tabular flint at Brambridge and Highfield near Southampton*, published in 1916. I investigated these finds at the Southampton museum in 1922, and concluded, both on typological grounds and from actual stratigraphic facts, that we have here a late Campignian culture unrelated to any microlithic influence.¹

Seven appendices to the text deal with some interesting side-problems. Among these I would single out an investigation into the question of the micro-graver, which the author holds to be a waste-product, and also the discussion of the English flint mines for which, according to Mr Clark, there is no palaeolithic evidence. The book is distinguished by thorough working-up of material, mature judgment, and a clear view of general aspects. It is of fundamental importance also for the problem of the Mesolithic Age outside England.

O. MENCHIN.²

EARLIER HISTORICAL RECORDS OF RAMESES III. University of Chicago Oriental Institute Publications, vol. VIII: Medinet Habu. Chicago, 1931-2, 2 vols. folio. £7 10s 0d each volume.

This magnificent publication by the Oriental Institute of Chicago makes fully available for the first time one of the most important monuments of Egyptian history. Plates only are issued as yet, with a short 'foreword' by the Director, Dr J. H. Breasted, and an introduction by the Field Director, Dr H. H. Nelson, giving a full account of the site of Medinet Habu, its architectural history, an appreciation of the temple sculptures, with notes on their technical peculiarities (which are of great interest) and a description of the procedure of photographing, drawing, and verifying the plates now published. These, it is interesting to note, have been printed at the Chiswick Press (except those

¹ Cf. C. Cooper King, 'Discovery of a flint implement station in Witmoor Bottom near Sandhurst'. *J. Anthr. Inst.* 1873, II, 365. [The book in question deals with a purely imaginary industry in tabular flint, but also contains accounts of other finds. It is to the latter, we imagine, that the reviewer refers.—EDITOR].

² Translated from the German by Roland G. Austin, University of Glasgow.

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in colour, which come from Berlin), and are a revelation to those who have had to work on photographs or drawings only.

The temple of Medinet Habu is even now the most complete of its kind; quite a considerable part of the outer wall has its cornice, and even the great towers of the façade is preserved well above the principal frieze of reliefs, and one of them displays part of an upper one. Though some sections of the sculptured wall surface have suffered from erosion, most of the more important scenes are almost intact, showing even, here and there, faint corrections of the design, and craftsmen's errors of reproduction from the original sketches, and slips of the painter's brush.

But it is the subject of this wonderful war-monument that gives it unique interest. Egyptian kings are sometimes held up as examples of inordinate pride and lavish misuse of wealth. If ever a monarch turned the course of history, and deserved that his courage and skill should be commemorated, it was Rameses III. The crisis of his reign came in its early years, and we are not here concerned either with the palace scandals, or with the thoroughgoing reform and reconstruction of temple-foundations, of his later years. His father Setnekht, a soldier who had married a granddaughter of Rameses II, and may have been himself of the same royal line, put an end, a little before 1200 B.C., to the anarchy into which Egypt had fallen in the last years of the 19th dynasty, and after a very short reign, probably not more than a year, was succeeded by Usermare Meriamon, his son, under the throne-name of Rameses III. Besides internal disorders, Libyan tribes were flocking into the Western Delta, as they had attempted to do a generation before. Now, as before in Merenptah's reign, they were reinforced by what Egyptians described as the 'Peoples of the Sea', some of whose names suggest that they came from the Aegean and southwestern Asia Minor, and whose coastwise attack on the Delta was concerted with the Libyan invasion. In 1194 B.C. Rameses III defeated this formidable combination utterly; the town nearest the battlefield was renamed in honour of the 'scourge of Libya', the western frontier was refortified, and in Egypt itself 'a woman might walk with her veil raised, as far as she wished, without interference'. Three years later, a similar danger loomed up, but on the eastern front, after all Syria and Palestine had been devastated by the 'northern invaders'. Again Rameses saved Egypt by skilful combination of land and sea forces, and settled the survivors of this mass-migration in the frontier district which thenceforward is known as Philistia. Another Libyan War, in his eleventh year, seems to have been a smaller affair, but no less skilfully handled. For the precise details of these events—already known, of course, from earlier publications of the narrative of the great war-monument at Medinet Habu—we must await the revised text and commentary. But with the graphic sculptures of battle scenes and long files of prisoners, we are enabled to reconstruct much, and in particular to appreciate the skill with which Egyptian artists rendered the various costumes and physiognomy of foreign peoples.

J. L. MYRES.

THE EDWIN SMITH SURGICAL PAPYRUS: published in facsimile and hieroglyphic transliteration with translation and commentary, in two volumes. By JAMES HENRY BREASTED. University of Chicago Oriental Institute Publications, vols. III-IV. Chicago, 1930. 2 vols. £4 10s.

The archetype of this document appears to have been written in the Pyramid Age (3000-2500 B.C.), but the extant papyrus is of the 17th century B.C., and unfortunately only contains the earlier part of the treatise; the scribe having apparently been interrupted

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when he reached page 17, and having resumed work with a much less important manuscript before him, a collection of charms and prescriptions (like those in the Ebers and Hearst papyri), which he copied on to the back of his manuscript. But what is preserved is among the most remarkable treatises of all antiquity, the first known record of anatomical study and surgical skill.

It hardly needs to be repeated that belief in magical remedies for human ills is not incompatible with accurate observation of natural objects, careful record of natural processes, in health and disease, and accumulated experience of the effects of manipulation and drugs. Sometimes in simple societies the two methods of treatment are combined, and it is difficult to distinguish the scientific from the superstitious elements. But if it be a mark of advanced civilization so to distinguish them and not merely apply them separately but dispense with the magical in describing the scientific treatment, this first surgical case-book surely ranks very high.

The cases which are described and discussed are thirty-eight in number (the last being incomplete) and are concerned with damage to the head, neck, arm and breast; no doubt the lower limbs and viscera were considered subsequently. Each begins with the diagnosis—'if thou examinest a man having . . . ' and directions for examining the injury; then a definition of the case, and the surgeon's decision, 'an ailment which I will treat', or 'an ailment with which I will not contend' but leave to natural processes; and then directions for treatment, or for leaving things alone—'his treatment is sitting, until he gains colour' and the like, sometimes with provision of supports of crude brick to maintain the favourable posture. Some of the surgical terms were already archaic when this copy was made, for there are explanatory notes; ' . . . it means that he says . . . ' and so on. The remedies are simple and familiar; swabs of linen, bandages, pads, and stitches; grease, honey, 'something hot', and occasionally 'fresh meat' on an open wound in the first instance. The queer phrase 'thou shouldst put him at his mooring stakes' is explained as meaning that his diet and treatment are to be regular, till he recovers.

What are conspicuous throughout are the keen observation, sound knowledge of anatomical detail, recognition of feverish and septic conditions, and of local or general paralysis, reliance on natural processes of recuperation, and recognition of injuries too serious for curative handling. Even in the last-named, however, the patient is given 'first aid' and the most favourable conditions for the offchance of recovery.

No less interesting to philologists are the many technical uses both of common and of archaic words, the latter going far to date the original composition, as the glosses to support the evidence of script for the age of this copy.

As editor, Dr Breasted has had the help of a medical colleague, Dr Arno B. Luckhardt, who has called attention to many anticipations of later anatomical and medical knowledge, and enabled the 'general reader' to appreciate the skill and scientific outlook of this early Egyptian surgeon. Though the cause of the injury is usually not stated—an exception is where a man has broken his neck by falling on his head—most of the cases are such as would result from violent blows, either in war, or in the severe corporal punishments often depicted in Egyptian labour scenes. We may compare the frequency of broken heads and broken fore-arms (raised to ward off a blow) among the predynastic people; and Dr Breasted has fitly supplemented his text with photographic reproductions of damaged Egyptian skulls, wounded mummies, and the like. On plate VII, 13, the fatal wound in the frontal bone 'with indications that death was not immediate', may have been due to a mace-blow, but looks as if it had been treated by trepanning, in the

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rather rough fashion still practised in Algeria and described by Capt. M. W. Hilton-Simpson (*Arab Medicine and Surgery*, Oxford Univ. Press, 1922).

The make-up of these handsome volumes is worthy of the traditions of the Oxford University Press, and the plates of the skill and taste of the firm of Emery Walker.

J. L. MYRES.

EARLY MUSLIM ARCHITECTURE: part 1. Umayyads (A.D. 622-750). By K. A. C. CRESWELL, with a contribution on the Mosaics of the Dome of the Rock and of the Great Mosque at Damascus by MARGUERITE VAN BERCHEM. Oxford: Clarendon Press, 1932. With 81 photographic plates. 10 guineas.

The first volume of Captain Creswell's long expected work on Muslim architecture emerges in distinguished form and notable dimensions. It more than fulfils our hopes and expectations and justifies its dedication to King Fuad, the worthy patron of all intellectual and scientific research in Egypt.

The author's original intention was to write a history of Muslim architecture in Egypt. He soon discovered that the dependence of that school on Syria was so intimate that it was necessary to begin at the earliest age of Islam and lay the foundation of his structure beyond the boundary of Egyptian activity. The material thus accumulating on his hands was so voluminous that it became necessary to deal with it in a preliminary volume containing a description of monuments, wherever existing, that date from the first three centuries of Islam.

Creswell divides his work into three parts, dealing respectively with the Umayyads at Damascus, the early 'Abbāsids at Bagdad, and the Tūlūnids in Egypt. Part 1 includes the first two (A.D. 622-935) of Leone Caetani's five chronological divisions of the history of Islam down to the Turkish conquest.

The arrangement followed is strictly chronological. Each monument in its turn is described and illustrated with plans, sections, and details. A remarkably full bibliography follows each section and the items of it are likewise chronologically arranged, enabling the student to determine at a glance how much weight should be given to each authority cited. It should also be observed that the photograph-plates are taken uniformly to one scale.

The book begins with a well-told account of the life and doings of Muhammad, of his house at Medina and of the rudimentary arrangements for prayer and the business of life. The growth of the movement from such small beginnings is lucidly explained and we are thus introduced to the earliest mosques at Kufa, Basra and Medina, and the first mosque at Jerusalem—their building and rebuilding. The Arabs possessed only the most rudimentary ideas of building, the bulk of the population being mere Bedu nomads. In early days they were largely dependent on converting churches to the use of the new religion. It was not till the time of al Walid or Abd al Malik that mosque-building was seriously undertaken, Sassanian, Syrian or other local architects being employed.

We are thus brought to one of the main portions of the book—that dealing at length and in great minuteness with the Dome of the Rock, every authority being employed, the author's conclusion being that it is a thoroughly Syrian building with Byzantine decoration. This part of the book is richly illustrated as is the part that follows, which deals at like length and minuteness with the great Mosque at Damascus. The author,

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I think, satisfactorily proves that this mosque, the most famous in the world of Islam in its day, was not a converted church, but was built (in A.D. 705) by skilled craftsmen brought together from all quarters—Egyptian, Byzantine, and so forth; the mosaics, dating from A.D. 715, came from Constantinople.

Considerable space is devoted to a thorough examination of all that can be learnt now about the mosaics from inscriptions and writers. Those that adorn the Dome of the Rock were the work of Syrian Christians. Moreover a great quantity of *tesserae* were obtained by stripping mosaics from churches, as Charlemagne carried off Ravenna mosaics for use at Aix-la-Chapelle. The mosaics of the Dome of the Rock, the earliest great monument of Islam, receive and deserve the close and lengthy attention here bestowed upon them. All students in future must base their studies upon the material collected by Miss M. van Berchem and Capt. Creswell. The mosaics of the Dome of the Rock are discussed as to their composition, their decorative motives, their technique, and their present condition. The Dome is the earliest great monument of Islam. Its decorative scheme results from the meeting of two currents: the Greco-Roman and the Oriental. The first is of chief importance, being full of creative fantasy. It should however be borne in mind that none of the contemporary Christian works of like character have survived for comparison. Syria at this time had a strong school of art independent of Byzantium.

It has always to be remembered that the Bedawin suffered from a kind of claustrophobia. They hated confinement in towns and had a yearning for the open spaces. The Umayyads were always Bedawin at heart. Some of their earliest buildings, small monuments lying out in the desert southeast of Amman, were camp-centres on or near old trade-routes.

A chapter is devoted to a discussion of Pendentives. The Dome was known in very ancient times. A builder's problem was how to fit a circular dome on to a square base. Already in the 2nd century A.D. the true solution had been found in Syria, whereof examples still exist. We are thus led to consider the early mosques at Ramla and Aleppo, the latter containing mosaics like those at Damascus, but they are lost. The history of the minaret is adequately described. Joggled voussoirs are incidentally considered and they are ascribed to a Ptolemaic origin.

An important chapter is devoted to Mschatta, which has suffered serious pillage by local builders. Sculptured fragments exist in many village houses. The construction of the Hijaz railway was responsible for much pillage of all monuments near by for the construction of stations, culverts, etc. Creswell thinks that Mschatta was never completed. He ascribes the sculpture to Copts working in two groups penetrated by Persian influence.

Creswell's general conclusion is that all surviving examples of early Muslim architecture are in Syria with one exception. Their mosques have gable roofs, demanded by climatic conditions. Christian architecture dominated pre-Muslim Syria, but in such Muslim monuments as the Dome of the Rock late Sassanian motives appear alongside of classical forms. This was due to the conscription of labour on a large scale from all parts of the Muslim Empire. Thus the traditions of Syria, Persia and Egypt became mixed together and controlled by the Bedawin instincts of the rulers.

What has thus been written by the reviewer is not intended to be an abstract of the book but rather a finger pointing to a part only of the quantity of important material which the author has gathered together. He has thus cleared the ground for his approach to the main subject of his researches—the history of Muslim architecture in Egypt.

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We shall look forward with keen expectation to his coming volume or volumes, which will doubtless maintain the high level of research and exposition reached in the first volume, which deserves all the praise it is receiving.

CONWAY OF ALLINGTON.

'UP FROM THE APE'. By ERNEST ALBERT HOOTON. *New York: The MacMillan Company, 1931. pp. xxviii, 626 and 58 illustrations. 5 dollars.*

I wonder if this book will appeal strongly to Professor Hooton's fellow experts. The style is bold and arresting—of the lecture room rather than the library—but such captions as 'Herr von Heidelberg: who fought without biting' do take one by surprise at this distance from Hollywood. Even should experts frown (and I do not think they will) there will be a very wide and thankful audience among laymen, and it is perhaps natural that one of us should attempt a review.

In the first place, what a relief it is to find someone who is not anxious to explain either himself or his grandfather. The all-conquering Nordic, the persevering and successful Alpine, and the brilliant, adaptable Mediterranean are put in their proper places. The ordinary mongrel is left with the comforting promise of hybrid vigour.

We are justly warned off the 'bed-time stories of the anthropo-geographer'. Professor Hooton is content, generally, to allow his facts to speak for themselves, yet here and there one feels he may not have gone far enough in this direction.

The 'stodgy Alpine race', for example, is said to dislike adventure on the high seas. Before one can adopt seafaring ways, however, it would seem necessary to acquire a seaboard. Generally speaking, the careful array of fact, the dispassionate, if lively, comment, and cautious summing up make one feel that we have found what we want for ourselves and our equally busy youngsters. And it is a profoundly interesting story.

We start with Man's Relations in part I. It seems simple stuff, but you will be sorry later if you skip it. Part II, on the Primate Life Cycle, is divided into twenty odd parts. Take the titles of some of them:—scrambling, breathing, hearing, climbing the family tree, smelling and handling, sitting up and looking around, becoming erect, making things, thinking, talking, growing and shedding hair. And again in part III, being born, growing, getting married, having a baby, bringing up a family, getting old and dying. Could any outline touch us more closely? Part IV, Fossil Ancestors, is the clearest and most entertaining summary I have seen. It ends off naturally in the family tree, which would have been the better for a time-scale. I wonder if the astronomer, geologist and anthropologist will ever realize how difficult it is for the average man to readjust his sense of time. Then comes the best wine last; contemporary races, what they are, how they developed, and their evolutionary meaning. Here we find broad classification rather than detail. For example, that interesting, fairly homogeneous and widespread African family, the Bantu, get two or three sentences only.

Dinka and Bahima are in one pigeon hole, Corean and Cantonese in another. How annoyed these strange bed-fellows would be. I suppose that as we get to know peoples better we tend to mix up race with many other factors, and that the sense of loss one has on consulting the expert is good for us.

The illustrations are admirable. The camera lucida drawings of skulls and the photographs of primates are of the highest class. The racial type photographs are good too, and perhaps the more so because some of them are so unexpected. It is wholly in the spirit of the text that we should be given such an odd trio of Nordics, but it is surprising to find a Singalee illustrating the Australoid strain and an Irishman as an

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East Baltic type. The benevolent pair of Ainus I have met before, although admittedly in different hats, as monks of the orthodox church.

So much for the first reading of a book which occupied very happily the whole of a journey from London to Rome and back again. I strongly recommend other 'men in the street' to spend the necessary 5 dollars, and I have no doubt whatever that they will get the same advice from the expert.*

H. ST. J. L. W.

ANCIENT OIL MILLS AND PRESSES. By A. G. DRACHMANN. *Archaeologisk-Kunsthistoriske Meddelelser*. Vol. 1, part 1. D. Kgl. Danske Videnskabernes Selskab. *Copenhagen*, 1932. (In English).

The publication of an archaeological periodical by the Kgl. Danske Videnskabernes Selskab is an event of some significance and it is of particular interest to find the first number dealing with the archaeology of an industrial process.

Mr Drachmann is too modest when he says (p. 127) 'To us the press is only a small part of an obscure subject among many in the Roman antiquities'. The subject is only obscure because it has been for so long the custom to neglect the study of the technique of early industries. After all, the ancients depended on the press for the supply of two of the necessities of their life. One reason for the lack of interest in ancient industrial methods is the inherent difficulty of the subject; another is the fact that until comparatively recent years the mechanical arts, with the exception of architecture, have been considered too humble to merit attention. It is much to be hoped that this substantial paper will be followed in the new *Meddelelser* by others dealing in a similarly thorough way with the plant and processes of other industries.

Although no monograph has previously appeared on the subject of oil mills and presses in antiquity, these machines have obtruded themselves upon the unwilling notice of editors of the agricultural writers, of Pliny, and of Hero of Alexandria. Archaeologists have also found their remains in great numbers, and have described them according to their lights. Mr Drachmann's way of dealing with his predecessors is nearly ideal; where they are wrong, he corrects them without asperity, although with the reservation that 'it is impossible to correct every silly notion that has been put on paper'. The book is addressed primarily to those making a special study of this and kindred subjects, but is not without interest to archaeologists in general, especially to those working on sites where trapetes and presses are likely to be found.

There are a few criticisms to make. The commentary on Cato's descriptions of trapetes, though clear and conclusive enough, is made confusing for English readers because Roman digits are throughout called 'inches', and the sign ' is used in dimensions to indicate *digits* and not English inches'. Anyone consulting the book to find the dimensions of trapetes would be led astray by this peculiarity.

No one can pretend that the description in Hero's *Mechanica* of the cutter for a female-screw-thread is clear or easy to follow, but, at the least, it contains nothing that is mechanically impossible. The same, unfortunately, cannot be said of Mr Drachmann's commentary on it. This much is clear from Hero, that the boring bar, to which the cutting tool is attached, consists of a cylindrical piece of wood from which a segment has been sawn away longitudinally. The iron cutter projects from the flat surface which remains when the segment has been taken away, and a channel of lenticular section is left through which the shavings can clear away from the cutter along the boring

* They will. EDITOR.

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bar. Without any authority from the text of Hero, Mr Drachmann says 'the sawn off part' [of the boring bar] is replaced . . . ; it could not quite fill out its old place, since even the finest saw-cut has a definite thickness ; but that would be of little moment, since the remaining part of the peg [*i.e.* the boring bar] would be enough to ensure a tight fit in the hole in which the screw thread is to be cut'. Now a tight fit is the last thing that is wanted, for it would infallibly prevent the cutter working at all, as any user of boring tools knows. Hero, being a competent engineer, said nothing about replacing the segment cut from the boring bar, because he knew very well that the action of his screw-cutter depended on good clearance of the cutting edge.

It is disappointing to find the old wrong-headed doubts about the date of Vitruvius repeated by so well-informed a writer as Mr Drachmann. Old errors, as he says himself, die hard indeed. Dietrich, Sontheimer, and Krohn have established plainly that the *de Architectura* was written between 40 B.C. and the battle of Actium, and the preface was added not much later than 28 B.C. 'But if we take it', says Mr Drachmann, 'that Vitruvius* is speaking of direct screw presses, then either Plinius is wrong, or Vitruvius's date is false'. There is no reason in fact why we should accept either of these alternatives, for Vitruvius may quite well be referring to screw and lever presses, in which case his evidence agrees with that of Pliny.

E. J. ANDRÉ KENNY.

LES RELIGIONS ORIENTALES DANS LE PAGANISME ROMAINE
(*Conférences faites au Collège de France en 1905*). By FRANZ CUMONT, Membre de l'Institut. Librairie orientale Paul Geuthner, 13 rue Jacob, Paris. Quatrième édition, 1929. pp. xvi, 339, with 16 plates, 13 figs. 80 francs.

This book is based upon two series of lectures delivered by Professor Cumont, the one in November 1905 at the Collège de France under the 'fondation Michonis', the other, a little later, at Oxford, at the invitation of the Hibbert Trust. In his preface to the fourth edition, undertaken, we are told, at the request of an enterprising publisher, the author points out that his task has been far from easy, owing to the great number of discoveries made, and of learned articles written, during the period of nearly twenty years that has intervened since the publication of his second edition. Indeed, an attempt to discuss all the new hypotheses that have been put forward, and to record and explain all the new results that have been obtained, would have involved the expansion of a small book into a large volume. But this would have further involved a complete departure from the author's original purpose, which was not to write a series of erudite dissertations for specialists, but to bring out into clear relief, for the general run of cultivated readers, the essential ideas and distinctive characteristics of the various oriental mystery-cults and to indicate the contribution made by each to the whole complex of Graeco-Roman religious thought. Since, then, any considerable multiplication of details would only have served to obscure the main lines, the author has left his text substantially unchanged, contenting himself with the correction of a few material errors, the addition of a few characteristic facts and a rapid indication of new views. The largest and most important addition to the text is the appendix on the Mysteries of Bacchus in Rome, which owing to their semi-Oriental character ought not to be neglected. The notes, however, have been entirely rewritten and very considerably enlarged ; and in them we find a chronicle of the principal new results arrived at by work published since 1909 and summaries of studies published by the author himself since that date.

* VI, vi, 3.

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The detailed index and excellent illustrations are further additions which greatly enhance the value of the book.

Anyone who takes up the book will realize at once that the faith of Professor Cumont's publisher in the success of a fourth edition has been completely justified. It is just this firm determination on the author's part that his readers shall not fail to see the wood for the trees that gives his book a permanent and independent value which remains undiminished by the progress of modern research. Not only does he provide us with a framework into which we can fit our new and more detailed knowledge as we acquire it, but by insisting upon the great basic ideas and tendencies that underlie these Oriental creeds he enables us to view in the right perspective each new discovery as it comes in and to grasp at once its true significance. After two introductory chapters, one discussing the influence on Rome of the Hellenistic East and the sources of our information about the mystery-cults, the other suggesting various explanations of the spread of these cults in general through the Empire, Professor Cumont devotes a chapter to each of the four great Oriental religions that passed westwards into the Roman world from four great centres—Asia Minor, Egypt, Syria and Persia. The character of each religion is expounded with a fulness and completeness that should more than satisfy the general reader, and the descriptions are vivid and picturesque. But the specific importance and significance of each is constantly kept before our eyes. We see how the Anatolian cult of Cybele or the Magna Mater introduced into the Occident the ideas of fanatical religious devotion, of 'sacrament', of moral and spiritual purification and of eternal life; how the chief attraction of the Egyptian cult of Isis and Serapis lay in the splendour of its ceremonial and daily liturgy carried out by members of a sacerdotal caste whose lives were exclusively consecrated to the priestly calling; how in Syria the primitive cults of local Baals were, largely under the influence of Chaldaean astrology, gradually transformed into the worship of a single deity of a very exalted type, transcendental, omnipotent, universal, eternal, a worship which appeared in Rome and Italy under the Severi in the form of the monotheistic cult of Sol Invictus; how Persian Mithraism upheld a high standard of moral purity and a high ideal of brotherliness and charity, and inculcated, owing to its dualistic teaching, the conception of life as a perpetual battle between good and evil, between the powers of light and the powers of darkness, and of salvation or damnation in the world to come according to the side on which the soul was judged to have ranged itself in the course of its earthly warfare. Next there comes a chapter on astrology and magic. Astrology is shown to be an essentially 'scientific' religion, based on observation and experience, claiming to foretell the fate of states and individuals with absolute sureness and exactitude, and teaching the idea of the world as a vast organism, the universal solidarity of the human race derived from its common parentage in the stars, the notion of a 'sympathy' existing between mankind and nature on the one hand and the stars of heaven on the other, and the human soul's capacity for 'communion' with the astral powers. Magic is the 'science' by which man learns how to please and appease the divinities resident in constellations, planets and stars and how to release, for the service of his own will, the latent forces of the natural world. In a final chapter on the transformation of Roman paganism Professor Cumont gives an admirable summary of the synthesizing tendencies common to this great variety of creeds, showing that, through the moral and intellectual sphere in which they moved and the common goal, that of assuring eternal happiness to the individual soul, which they had in view, they transformed the whole aspect and orientation of Roman paganism, unconsciously drawing nearer and nearer to the Christianity that

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first fought and finally vanquished them. 'L'esprit religieuse et mystique de l'Orient s'était peu à peu imposé à la société entière, et il avait préparé tous les peuples à se réunir dans le sein d'une église universelle' (p. 194).

There are two points in the book which seem to call, not exactly for criticism, but for reconsideration on the part of the reader. On pp. 3 and 4 Professor Cumont lays emphasis upon the imitation of the East which is discernible in the political institutions of Imperial Rome. It must, of course, be admitted that Roman centralization and bureaucratic administration represent, to a very large extent, the matured product of experiments which the Hellenistic kingdoms had already 'tried out', and that the court terminology, ceremonial and etiquette in use under the Oriental monarchies were gradually taken over by Rome in the course of that process which transformed the Augustan principate into the absolute monarchy of the third century A.D. But it must be remembered that the Roman genius alone evolved that institution of Imperial citizenship combined with local citizenship which was the fundamental basis and principle of the Empire's cohesion and solidarity, and which substituted for the political *organizations* constituted by the Graeco-Oriental kingdoms the living *organism* of the Imperium Romanum. Secondly, we miss in the book an attempt to explain, however briefly, the uncompromising warfare waged by the Christian Church upon the mystery-cults that seem to resemble it so closely, or to discover that vital something which the mysteries lacked and Christianity had, accounting for the ultimate failure of the one, and the success of the other, in winning the allegiance of mankind. This might have helped to throw into even clearer relief some of the features of the mysteries themselves.

J. M. C. TOYNBEE.

WANDMALEREIEN DER ATHOS-KLÖSTER. Grundsätzliches zu den Planungen der Bildfolgen des 14-17 Jahrhunderts. By FRITZ FICHTNER. Berlin: Dietrich Reimer, Wilhelmstrasse 29, 1931. pp. 64, map, 2 plans and 63 plates in collotype. 40 Rm.

Dr Fichtner's book is one for the general reader and student rather than for the narrow specialist. He presents in a convenient and accessible manner a summary of what is known of the wall-paintings of Mount Athos. After a short introduction describing the organization of the Holy Republic and its present-day status, he analyzes the character of the paintings. He notes that the work is not purely representational, not naturalistic in its aims, but seeks rather to convey a weighty message and a deep meaning by means of forceful, even harsh media. The paintings of Athos would thus, according to him, fall into that group of Byzantine art which is primarily inspired by the East, and which was in earlier days mainly associated with Syria and Cappadocia. Though this is true of the Athos paintings to a considerable degree, there is nevertheless to be traced as well a definite love not so much of the idealistic, as of the ethereal—the same spirit in fact that we see in some of the ivories or mosaics of the eleventh or twelfth centuries—and it is this spirit which serves to distinguish the paintings of Greece and Athos from those of Cappadocia as far as style is concerned, though iconography, technique and other matters probably played a more important part in the formation of the later 'schools'.

The second chapter is concerned with the liturgy and its demands on architecture, and on the arrangement of decoration in the church. The daily services are described—a long footnote (p. 18) deals with the development of the actual liturgy throughout the

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ages—and the arrangement of the scenes on the church wall, originally set out in the painter's guide, is summarized. A most useful plan showing how the various scenes of the liturgy, the gospels or the apocrypha are arranged in the church is given on page 22.

In the third chapter the place of Athos in Byzantine art is considered and certain characteristics of this late period are tabulated. The fourth deals with matters of dating; an extremely useful table of the monuments and their dates is given on pp. 46 and 47. In the final chapter the characteristics of the two main schools of painting on Athos, the Macedonian and the Cretan, are summarized.

The book is illustrated with 63 really first-class plates, in which views, architecture and interior decoration play a part almost as important as that of the wall paintings.

D. TALBOT RICE.

L'ART BYZANTIN. Tome I. By HAYFORD PEIRCE and ROYALL TYLER. *Paris: Librairie de France, 1932. pp. 116 and 200 plates in phototype. 350 francs.*

The first volume of this magnificent work deals with the period 298 to 518, when Byzantine art in the true sense of the word was in the process of formation. Many of the objects illustrated are, in fact, in no sense Byzantine; they are the Romanized descendants of Greek originals and they are to be counted among, but not as the only, forerunners of Byzantine products. To make the character of that art clear to the full, a number of plates illustrating works produced in Syria and Asia Minor during the Hellenistic period and in the more definitely eastern spheres of Mesopotamia and Persia would also be desirable, for these eastern elements were in some cases even more important than the Roman in the formation of what may be termed pure Byzantine.

The collection of plates as it stands is, nevertheless, of the very greatest interest. The authors set out to show the importance of Byzantine art and to tell its story by means of reproductions; each plate is described and discussed at some length. Yet the work is not a corpus, for the numerous kindred objects that exist are not listed. The descriptions are excellent and the system on which they are done is described in a preface (pp. 11-14). A chronological table enables the reader to make full use of these descriptions and a map of the Roman Empire at the end of the 4th century is an essential which is all too often omitted in art books of this type.

Another short preface (pp. 9-11) deals with the character of Byzantine art. It is concise and to the point, yet certain statements seem, to say the least, questionable. Thus on p. 10 the authors remark 'at its decline and then only did the art of the Eastern Empire become exclusively religious in character'. On page 11 they conclude the introduction with the words, 'one will not be far from the truth in saying that the religious sentiment was not supreme when the art was in its infancy, that this spirit was powerless to arrest its decline and that it remained foreign to a good many of its most successful achievements'. That some great secular monuments were produced by Byzantine art is a fact which cannot be disputed, but the religious character of Byzantine art in general seems to the reviewer something which is absolutely essential to it. Had it not been for Christianity, it is highly probable that that fusion between East and West which formed the basis for Byzantine art would never have taken place, nor would the subtle character which distinguished the Byzantine ever have been evolved. The very fact that Justinian expended all his resources on the building of the greatest cathedral of the world, while

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the royal palace remained a conglomeration of small buildings, is a striking proof that religion was above anything else an essential of the age, of its culture and of its art.

The remark that Byzantine art reached its close when the artists became content with mere illustration is true enough. Yet it is hardly just to say that this decline is characteristic of the thirteenth century in general. The researches of such a savant as Millet have amply proved the importance of this late period and we are just coming to realize that some at least of the icons and wall paintings of the 13th, 14th, 15th and even the 16th centuries have a definite importance as works of art.

The descriptions of the individual plates are preceded by a general outline of the period covered in the first volume, comprising, (1) the beginnings and the Tetrarchic style, (2) Constantinian art, (3) the end of the 4th century, (4) the 5th century. This tells the reader what to expect. To follow the development of the art during this period he must turn to the 200 plates.

The work is excellently produced and it is to be commended to the general reader as well as to the specialist. It is to be completed in five volumes. We look forward to the appearance of the others which will deal with the ages which must, for us, be regarded as truly Byzantine, rather than with the early period of preparation and formation.

D. TALBOT RICE.

THE ANIMAL STYLE IN RUSSIA AND CHINA. By M. ROSTOVITZEV.
Princeton University Press, 1929. pp. xvi, 111, and 32 plates. 52s 6d.

Professor Rostovtzeff has made a valiant attempt to ascertain the origins of the animal style in art in non-Chinese Asia on the one hand and in China on the other. His splendid series of plates will in any case serve as a valuable corpus for all others who may venture into this indeterminate *terra incognita*. But in regard to the Chinese side of the problem the author is frank. 'The great difficulty', he points out, 'consists in the almost complete lack of scientific evidence for dating Chinese bronzes and jades'. This difficulty is intensified by the fact, as the author puts it, that 'it is not easy to deal with the Chinese animal style for one who does not know the Chinese language, who has never been to China, and who knows Chinese art therefore not in its natural surroundings but from articles scattered in American and European museums'. I cannot envy the author his task and feel tempted to suggest that no further progress can be made with the problem at all until really scientific excavations in China, Siberia, Turkestan and Tibet have provided specific starting points for an enquiry. As things are at present, Chinese art has to be classified almost entirely upon a morphological basis, which, as is well enough known, is invariably beset with deep and dangerous pitfalls. Strictly speaking there is no such thing as an archaeology of China as yet. The tentative conclusions reached in this short but well documented book may therefore be reversed by any established scientific discovery. Indeed the author has already discarded the main conclusion reached in his book 'Iranians and Greeks' that Chinese and Scythian animal styles were derived from a common origin.

The first 61 pages of the text are devoted to the Scythian and Sarmatian material, with some additions to that already published in earlier books. In the remaining 50 pages the Chinese side is discussed. The main conclusion is that the Yue-Chi, who perhaps started life in Tibet, were the carriers, or even the inventors of the animal style. The Huns in turn took it either from them or from a common source. But all this is *obscurum per obscurius* until the elements of Tibetan archaeology are known.

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In conclusion the author disclaims any intention to follow the spread of the animal style into northern Europe and he asks the question whether the animal style influenced Byzantine and early Russian art. On one part of this latter problem the present reviewer feels few doubts. Byzantine art had its animals, like most arts at all ages, but they bear little relation to the Central Asiatic animal style. Beyond certain qualities they have in common with Persian and Sassanian art (which involves of course an indirect connexion with Asia) almost all of them are semi-Hellenistic and fully adapted by Byzantine art into its own mode of thought and expression. This line of enquiry at least will prove a *cul-de-sac*.

S. CASSON.

CORINTH: results of the excavations conducted by the American School of Classical Studies at Athens. Vol. VIII, part 2. Latin Inscriptions (1896-1926) edited by A. B. WEST. *Harvard University Press*, 1931. pp. XIV, 171. 5 dollars.

CORINTH: vol. x. The Odeum. By OSCAR BRONNER. *Harvard University Press*, 1932. pp. XIV, 154, and 16 plates. 5 dollars.

This is a model epigraphical publication. Despite difficulties presented to the author by the lack of early excavation records, a complete collection of every inscribed Roman fragment found at Corinth during thirty years' excavation is here available. Needless to say a compilation of this kind does more to illustrate the life of Corinth during the Roman period than any study of historical texts, for it gives the details of the minor official activities of the people and affords a prosopography which is bound to be useful for research students in the future. But the results are not exciting. There are no inscriptions of vital historical importance. The earliest of all records in verse the transport across the Isthmus of a Roman fleet, written by a poet who served under Marc Antony's grandfather, and was naively or deliberately ignorant of the fact that the Isthmus had previously been so crossed on more than one occasion. Another inscription mentions the family of Herodes Atticus, showing that the family had Corinthian connexions before the time of Herodes himself. Otherwise the collection consists of the usual type of epigraphical material.

The account of the Odeum at Corinth is as full and detailed as any excavation report could well be and it will serve as a useful guide in any similar excavation. But it must be admitted that the building is hardly worthy of the publication, for a less inspiring relic of Rome could hardly be imagined. Only two sculptures of importance were found and a fragment of a painted figure of Athena, standing. The publication of these leaves much to be desired. There is no analysis of the pigments used in the painting. Here, after all, was an excellent opportunity for a close chemical analysis and a consequent improvement of our knowledge of ancient painting. There is in the painting a plentiful amount of blue, and blue, as is well known, is a key pigment which may help to establish date and place of origin. As it is, the authors are unable to date the painting at all.

Of the two sculptures one is a well-preserved archaistic figure of Athena, clearly modelled on a sixth century *kore* type. The authors attempt to date it on technical grounds, pointing out that the absence of the use of a drill must conclusively assign it to a period of Roman carving when the drill had fallen out of use and popularity. On this assumption they date it to the early third century A.D. But their assumption cannot for a moment bear scrutiny. A sculptor who was deliberately following the mode of the sixth century B.C. would, if he were conscientious, have followed the

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technique as well as the style of his prototype. In this case that is exactly what he has done, and the period which he followed was one, in the mid-sixth century, when sculptors did not use the drill at all. This is evident from the way in which the folds of drapery are rendered: they correspond exactly with the folds of a certain group of Attic *korai* in which flat and undrilled drapery is universal. It becomes, therefore, not only hazardous but actually impossible to use technical arguments in the case of archaistic sculpture. For you never know for certain whether the artist is following the technique of his day or of his prototype.

The other sculpture is a large part of a superb figure in armour. The skill and beauty of the detailed ornament place it in the forefront of Roman work. It is a most welcome addition to our knowledge of Roman carving.

S. CASSON.

JAINISM IN NORTHERN INDIA, 800 B.C.-A.D. 526. By CHIMANLAL J. SHAH. Longmans, 1932. pp. XXIV, 292 and 26 plates, 2 maps. 42s.

Jainism as we know it took shape not only at the same time but in the same environment as Buddhism. So far, however, from the records of one religion confirming or supplementing those of the other, we find as between these two sets of records a discrepancy which throws a disquieting light on much that has passed as historical fact. The monarchs whom we have accepted as ardent supporters of Buddha and his doctrine re-appear in Jain literature as enthusiastic patrons of his rival Mahavira. It has even been suggested recently that Buddha and Mahavira were the same person. It is certain at any rate that there has been contamination between their legends. Buddha's death is closely connected with a place called Pava and a blacksmith called Cunda. Mahavira dies at Pava, and Cunda brings the story of his death to Buddha.

The author is chiefly concerned in this scholarly book with the outward history of Jainism, rather than with its tenets. To the outside world the most striking feature of the religion was its cult of nakedness, which horrified certain other sects, notably the Buddhists. Beyond telling us that the stricter Jains held 'absolute nudity to be a necessary condition of saintship' the author does not attempt to explain the connexion between this practice and Jain philosophy. It had the unhappy result of entirely excluding women from the higher walks of orthodox saintship, for it was not contemplated as possible that women should conform to such a prescription.

ARTHUR WALEY.

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PREHISTORIC CIRCLES AND WOODEN POST-HOLES NEAR NORWICH, DISCOVERED FROM
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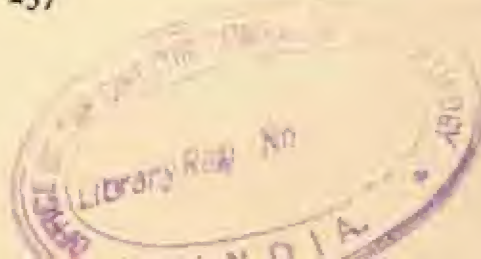
SEPTEMBER 1933

Editorial Notes

OUR readers will remember that one of Wing Commander Insall's most important discoveries was a second Woodhenge, just outside the city of Norwich. We published his air-photograph of it at the time (ANTIQUITY, 1929, III, 257) and we were not without hope that those residents in Norfolk who profess an interest in archaeology might do something about it. The site would not have required much money or labour to excavate; it is so placed that sooner or later it was likely to be threatened by building operations. It therefore came within the scope of sites recommended for excavation by the Research Committee of the Congress of Archaeological Societies (see the Committee's first report, p. 1). The Roman town of Caistor did not, as was pointed out in our same volume (pp. 186-7). The site was not threatened; nor was it likely to yield an adequate return for the money to be expended upon its excavation. Nevertheless a large sum was raised and excavations have been carried out there for several seasons. As a matter of interest the photograph referred to above is now reprinted.



It is now too late to excavate the Norwich Woodhenge in the way it should be excavated, for in 1931 a pylon for a power-line was planted upon it. We are not amongst those who cry 'sacrilege' at the first



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suggestion of touching sacred sites and graves, though if conducting excavations we should always respect their feelings in such matters. We prefer to emphasize the loss of a great opportunity—the excavation and preservation of a unique monument, unexpectedly presented to us by air-observation and photography. It is all the more to be regretted because the Norwich Woodhenge lay just outside a large town, and therefore was easily to be seen by large numbers of people. Further comment is unnecessary; the facts speak for themselves.

Nevertheless we would not wish to leave this subject without a few general remarks. The Earthworks Committee of the Congress, which did such good work before the War, and which laid the foundations of much modern field-archaeology, used to classify the items in its annual reports under the headings of Preservation and Record, Destruction, Exploration. From this it was a legitimate inference that the work of county archaeological societies should be primarily concerned with these three aspects of their local antiquities—to ‘explore’ them, to add new ones to the map and describe them, and to preserve existing ones from harm. It may be thought that the creation of a special Government Department to schedule and preserve antiquities has relieved provincial societies of some of their responsibilities; but it has not done so. The Ancient Monuments Branch of the Office of Works is dependent upon local information, and cannot be expected to be aware of threatened interference with sites unless it is informed by those on the spot. The responsibility still lies with interested residents to report such threats to the proper quarter if they cannot avert the danger themselves. There seems no reason to doubt that in the present instance timely action would easily have averted the disaster. A very small deviation in the line of pylons would have been sufficient.

We came across the following passage recently in a book we were reading:—

‘No copies of the *Zeitschrift für Rassenphysiologie*, which deals largely with the questions [of blood-tests of race] discussed, are to be found in London, the capital of the Empire containing

EDITORIAL NOTES

the greatest diversity of races. One copy passes through a London bookseller to Australia'. [Essay on 'Prehistory in the Light of Genetics' in a book entitled *The Inequality of Man*, by J. B. S. Haldane, F.R.S. (Chatto and Windus, 1932, p. 69)].

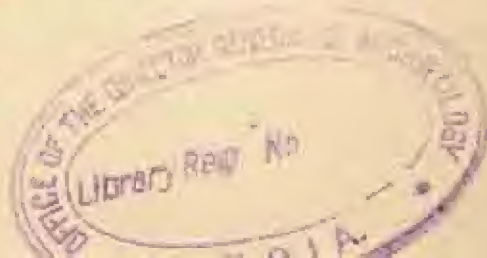
If one may judge from their bulletins, the Trustees of the British Museum still concentrate upon the acquisition of breviaries, books of hours, rare editions, and other curios. We would suggest that there is a section of the public which would welcome a change of policy, and the purchase of such foreign journals as the *Zeitschrift* mentioned above in preference, if need be, to specimens with a 'rarity interest' only.



This attitude towards foreign scientific journals makes research work unnecessarily difficult, and it is difficult enough in any case. It also hampers the diffusion as well as the advancement of knowledge. For instance we asked the author of the book referred to above for an article describing in non-technical language the use of blood-tests in classifying the races of humanity. The article was well in hand, but some essential facts were contained in the *Zeitschrift* mentioned. This was not obtainable in England, and the article had to be abandoned. The public must therefore remain in ignorance, so far as ANTIQUITY is concerned, of one of the most far-reaching discoveries of modern times.



But it is not only in foreign periodicals that our National Libraries are deficient; they do not even possess complete sets of the Transactions of the British learned societies. The excuse given is that some of these, not being published in the legal sense but privately printed, do not come within the Copyright Act and do not therefore find their way automatically to these Libraries. When it is suggested that they may be purchased by a small outlay, one receives the evasive reply that the Librarian cannot be expected even to be aware of the existence of many local societies. This answer ignores the fact that each year there is published a Year-Book of Scientific and Learned Societies (Charles Griffin and Co.) with the names and addresses of officials and details of publications issued. It would not have been



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difficult to check this with the catalogue once a year, and make up sets of Transactions. The foregoing generalities are based upon actual experiences in a library receiving books under the Copyright Act; our first experience occurred about a quarter of a century ago and the last during the present year, in the same library—which is not in London.



It should be pointed out, for the benefit of librarians, that the Transactions of local societies contain essential facts—raw materials—for any one who is doing research work of an archaeological, historical or topographical nature. Much of their contents may be second-rate, or valueless; so are the contents of most of the newspapers received. But nearly every issue records discoveries which are nowhere else described. Taken singly such records may appear commonplace and of no special importance; but English prehistory is largely built with bricks of this kind—the map of Roman Britain (and its forthcoming successor) almost entirely. And how much the work of a great pioneer like Professor Haverfield was based upon casual records in local Transactions may be seen from the references attached to his articles in the volumes of the Victoria County History. ‘Common things’, said General Pitt-Rivers, ‘are of more importance than particular things, because they are more prevalent’. By ‘particular things’ the General no doubt meant ‘rarities’, such as appeal to the collector.

Remarkable Discoveries in the Athenian Agora

by THEODORE LESLIE SHEAR

THE second campaign of excavations in the Athenian Agora, which was begun in January 1932, has produced important results in many fields of art and archaeology. The work is conducted by the American School of Classical Studies at Athens and it enjoys the cooperation of the Greek Archaeological Society through the presence on the staff of Professor A. D. Keramopoulos of the University of Athens. During the present season an area of about one and one-half acres, which had been occupied by twenty modern houses, has been cleared by the removal of 10,000 tons of earth.

The topographical evidence which has been secured warrants the definite identification of several historical buildings. The foundations in the northernmost sector of the excavations, just under the hill of the 'Theseum', were tentatively identified last season as belonging to the Royal Stoa, the headquarters of the Archon Basileus, the chief magistrate of the city. This identification has been confirmed by the current investigations, and a building opening from the Stoa on the west has been uncovered.

In the next area of excavation to the south, the entire front of the Stoa of Zeus Eleutherius, where Diogenes the Cynic used to lounge, is now visible on the west side of the street of the Agora, and on the east side is a marble altar which is probably to be identified as the altar of the Twelve Gods. (Plate 1). As the sites of these buildings conform admirably to the descriptive account of them recorded by Pausanias, the areas for the future progress of the excavations are clearly indicated, following the route of the street to the north and to the south.

THE SCULPTURES

The rich discoveries in the field of sculpture include an archaic head of the bearded Hermes dating from the 6th century B.C., and

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another bearded Hermes of the second quarter of the 5th century. There are also other marble heads of the Greek and of the Roman style, a marble herm which is surmounted by the head of a youthful Hermes, and a bronze statuette of Athena Archegetis who is holding an owl in her hand. In addition to these pieces of relatively minor importance four works in this field are conspicuous for their beauty and for their artistic and archaeological interest.

A marble figure of a young woman clad in thin transparent drapery, which clings so closely to the body that the contours of the graceful form are revealed, is a masterpiece of the early part of the 4th century B.C. (Plate II). The back of the statue is not carefully finished and this fact, together with the pose of the figure, indicates the probability that it originally formed part of a pedimental sculptural group. As it was found just east of the base of the hill of the 'Theseum' it is tempting to try to associate the sculpture with that temple. But the style of the work is late for the 'Theseum' and the statue, like a similar one in Burlington House, London, belongs rather to the school of Timotheus, and is stylistically related to the Amazons of Epidauros and to the Nereids from Xanthus.

A bronze head of a woman, which was found in a well, is in a state of almost perfect preservation. (Plate III). The effect of the bronze was heightened by narrow strips of silver inlaid in grooves along the edges of the hair and in a vertical band on each side of the neck. At the back of the neck there are also three narrow vertical inlays of a darker metal than the bronze. Silver earrings were set in the lobes of the ears and the eyes, which are missing, were also inlaid. The hair, which is arranged in delicately cut, wavy locks, is brushed up to the crown where it terminates in a small projecting knob. The lower part of the piece with the pointed bronze projection has finished edges which are unbroken. The head was, therefore, evidently set into the neck-socket of a statue, and the knob on top may have served as a support for an additional piece of the headdress. The style of the features exhibits a repose and a severity of expression which are usually associated with products of the 5th century. All the objects in the well date prior to the early part of the 3rd century, when the well was filled up and covered by foundation blocks of the building west of the Royal Stoa. Consequently the head was thrown away at that time, but its style proves that it was made many years earlier. Original bronze sculpture of the classical age is rare and this is an artistic masterpiece of its period.

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A marble statue of the Emperor Hadrian, which had been discovered in a water-channel near the close of the campaign of 1931, was successfully extricated during the present season. (Plate IV). Although the head has not been found, the statue can with certainty be identified as Hadrian from the symbolical insignia on the breastplate, which occur on several similarly garbed Hadrianic figures. The goddess Athena with shield and spear in the centre, flanked by owl and serpent, is the emblem of the city of Athens, just as the wolf suckling the twins is the symbol of Rome. The combination of these motives on the statue honours Hadrian as benefactor of Athens and Emperor of Rome. Winged Victories appear in the main group approaching Athena with wreaths to crown her, while the suspended lappets of the corselet are decorated with the head of Zeus Ammon, with the imperial eagles, with heads of Apollo and with elephants' heads. The workmanship of the figures is better than that on most imperial statues and the work undoubtedly dates from the time of Hadrian.

Probably a product of the same period is a marble statue of a Faun which exhibits characteristics very unusual in classical sculpture. (Plates V-VI). The Faun was a merry, mischievous creature of the woods with horns, pointed ears, a tail and goats' legs. In this figure, however, the animal characteristics are minimized and emphasis is laid on the human element. The horns and tail are very small and the figure has human legs and feet, but a goat's skin has been thrown about the body of the boy and a goat has a place in the scene by his side.

The statue represents a jolly boy who is standing on a bit of rocky ground. With his left hand he grasps the horn of a goat while he holds in the right a syrinx or Pan's pipe. He has a pleased expression on his face, as if he had just finished a tune which he had greatly enjoyed.

The shape of the head is especially noticeable because the bony structure of the human brow has been modified so that the short horns would seem to grow naturally out of the forehead. The teeth have been neatly carved in the grinning mouth, and deep dimples are indicated on each side. The humanity and modernity of the irregular nose and of the half-open mouth with its visible teeth almost belie the evidence of the pointed ears which characterize this care-free creature of the hills and woods. The result is a head of extremely modern appearance for which it would be difficult to find a counterpart in all the range of classical sculpture.

The statue was found in a well which had been filled with débris in the beginning of the 4th century A.D., as we know from the lamps,

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coins and terra-cottas which were in it. Therefore the statue, which had been broken into 73 pieces, was thrown away at that time, but its style and the finish of the marble suggest that it was made in the 2nd century A.D. It was probably smashed by the Christians, who would have objected to this soulless pagan youth.

THE POTTERY

The discoveries of the season in the field of pottery are very numerous and cover a wide range of date, thus giving a survey of the development of the ceramic art in Athens over a period of many centuries.

A large collection of Hellenistic pottery of the 4th and 3rd centuries B.C. was secured from wells where it was associated with other objects by which the ware can be approximately dated. As little exact information in regard to this type of pottery has previously been available, this discovery will make possible a new evaluation of the material. A typical specimen of the class is an amphora decorated with square motives on the shoulder. The designs are applied in buff and white on the black ground. Moulded heads or masks are often used as accessory decorations at the base of the amphora handles or as medallion-designs in the centre of saucers. Although the decorations are often sketchily drawn, the effect of the whole piece is striking because of the contrast between the black ground and the chalky white elements of the pattern.

The presence of many terra-cotta figurines and of the moulds from which they were made proves that this industry was diligently pursued in the Athenian market-place. One piece of unique character is a plaque, measuring $9\frac{1}{2}$ by 5 inches, with the figure of a snake-goddess. (Plate VII). The head is in relief but the heavily draped body is painted in red, blue and yellow. The woman is a wild-looking creature with red hair and long curls, and with her arms held aloft with palms open and with fingers extended. On either side of her a serpent is painted in vertical position, the one red and the other blue. The plaque was found on the north slope of the Areopagus, on the northeast side of which a shrine of the Eumenides was located in a cleft of the rocks. The appearance of the figure and the presence of the snakes argue for the identification of the woman as one of the Furies. The deep red colour of the cloak is a confirmatory item of evidence, because Aeschylus refers to the Eumenides as 'wanderers accepted with their robes of

PLATE I



A SECTOR OF THE AGORA EXCAVATION LOOKING WEST ACROSS THE NORTH END OF THE STOA OF ZEUS
Hadrian's statue is in the lower left-hand corner, and the Thesaurus is in the background

PLATE II



MARBLE STATUE FROM A PEDIMENT, EARLY 4TH CENT. B.C.



BRONZE HEAD WITH SILVER INLAIS, 4TH CENT. B.C.

PLATE IV



STATUE OF HADRIAN, 2ND CENT. A.D.

PLATE V



A MARBLE FAUN

PLATE VI



HEAD OF THE MARBLE FAUN

PLATE VII



TERRA-COTTA PLAQUE WITH COMBAT SCENE, 5th-4th CENT. B.C.

PLATE VIII



OSTRAKON USED FOR VOTING THE OSTRACISM OF ARISTEIDES. 483 B.C.

DISCOVERIES IN THE ATHENIAN AGORA

crimson dye'. The place of discovery makes it probable that the plaque was actually dedicated in their sanctuary on the Areopagus.

The period of the bloom of Greek art in the 5th century B.C. is represented by two beautiful terra-cottas. One is a statuette of a seated goddess which closely resembles the figures of Demeter and Persephone from the east pediment of the Parthenon. It exhibits the characteristics of the style of Pheidias and was probably made after a statue by that sculptor. The second terra-cotta is a plaque with a representation in low-relief of a combat between two youths. This is a trial cast made in terra-cotta from a mould which, if found satisfactory, would be ultimately used for a cast in metal. The figures are again reminiscent of those on the frieze of the Parthenon. Besides these masterpieces of the coroplast's art the host of figurines of many types and of various periods attests the interest of the Athenians in this branch of the minor arts.

LAMPS AND COINS

The collection of Greek and Roman lamps from the excavations has been enriched during the season by the addition of some 300 specimens which represent many different types and periods. They range in date from the 7th century B.C. to the 4th century A.D. and illustrate graphically the development of the lamp-making industry in Athens from the earliest to the latest times.

The silver and bronze coins number 4700 for the year which, added to the 4350 pieces found in 1931, make a total of over 9000 for the two campaigns in the Agora. Most of the coins are made of bronze but there are also representative silver pieces of Athens, some of which are as fresh and sharp and new in appearance as when they were struck. Although the bronze coins are generally of little intrinsic value they often furnish important data for determining the approximate age of the deposits in which they are lying and, therefore, great care is always exercised in the excavations to the end that none of these potentially precious records may be lost.

The daily life of the ancient Athenians was much concerned with phases of law and of religion. The latter sphere is represented among the discoveries by a beautifully carved Gnostic gem in green jasper. The Gnostics were a powerful religious sect of the 2nd century A.D., who cultivated magic and mysticism, and whose religion included Greek, Egyptian and Semitic elements. Their gems were talismanic and were decorated with fantastic images, with the names of strange

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deities and with cryptic formulae. The new specimen belongs to the type called Abrasax and that name is written on its edge. The numerical value of the letters of this name is 365, the number of days of the year. The abrasax image, which appears on the face of the stone, is a strange creature with the head of a cock and with serpents instead of legs. In the field are five stars. The letters below the figure are incomprehensible, as is often the case on these stones. The back of the gem has the figure of Harpocrates or Horus seated on a lotus, the symbol of the vernal sun. The letters about this figure, except for two series of vowels, are also incomprehensible, but the names written about the stone on its edge are perfectly clear. In addition to the vowel series they are Abrasax, Iao, Sabaoth, Adonais. Many works have been written in research and elucidation of these curious gems with their weird figures and their magic phrases. They represent an extraordinary mixture of Christian motives, of Hebrew theology, of Egyptian iconography, and of pagan superstition. The new discovery is a particularly fine example of its type.

Another important phase of Athenian life is illustrated by relics of the operation of their judicial processes. All citizens eligible for jury duty received a bronze ticket of identification which bore the name of the owner, the section in which he was to serve and the official seals of the city, the owl and the Gorgon's head. When acting at a trial each juror was given two bronze ballots, which were discs made either with solid or hollow hubs. The disc with the solid hub was used in voting for acquittal, the other for conviction. When summoned to vote the juror advanced with the hub held between his thumb and forefinger, so as to ensure secrecy, and cast the ballot into a bronze urn. The discarded disc he placed in a clay vessel. The majority of the votes in the bronze urn decided the cast. The new examples date from the 4th century B.C. and are contemporaneous with the description of the procedure given by Aristotle in his Constitution of Athens.

A notorious development in Athenian jurisprudence in the 5th century B.C. was the practice of ostracism, by which the citizens could condemn to exile for ten years an over-powerful leader by scratching his name on a piece of pottery, called *ostrakon*. (Plate VIII). The first politician against whom this law was invoked was Hipparchos, who was ostracized in January 487 B.C. One of the votes against Hipparchos is included in a deposit of twelve *ostraka* found in the excavations. The other names recovered are Megakles, Hippokrates, Aristides and Themistokles. The two latter were the most distinguished statesmen

DISCOVERIES IN THE ATHENIAN AGORA

who were thus condemned. The stories about the ostracism of Aristides the Just are familiar, but it makes history very vivid to find the actual votes used on the occasion in January 483 B.C.

This brief account of the results of the past campaign shows that the excavation of the Agora in its initial stages has already produced objects of art of wide variety and of the highest excellence. It has increased our knowledge of the history and the culture of the people, and has supplemented and confirmed historical and literary records. Discoveries of such variety and importance could be made only among the remains of a great and rich city where for centuries civilization flourished at its highest point.

The Distribution of Gaulish and British Coins in Britain

by GEORGE C. BROOKE

Deputy Keeper of Coins and Medals, British Museum

THE origin of the British coinage has in recent years broken loose from the tradition of an early 2nd century date. Its date is necessarily dependent upon the dating of the Gaulish coinage from which it is derived; the link with Gaul has militated against the simpler view of the British coinage which would result from bringing the earliest issues into closer relation with those that bear names of princes known to history. The coinage of Gaul has lost perspective by the attempt to make it span the wide gap between Philip II of Macedon and the Roman conquest; a very slow development of type has been assumed, and devious trade routes have been created to bring the gold stater from Macedon into Gaul.

All surveys of the Gaulish coinage have overlooked the cardinal point that in the 2nd century B.C. the staters of Philip became the gold currency of Rome. It was from Rome, not from Macedon, that the stater found its way into Gaul. In the early years of the 2nd century the spoils from the Macedonian and Syrian wars included enormous quantities of the so-called Philippi. Livy tells us that after the victory of Magnesia as many as 140,000 of these gold coins were carried in the triumph of Scipio Asiaticus in 188 B.C. If we may interpret *signatum aurum* in the same sense, and it is difficult to do otherwise, no less than 693,000 staters figured among the spoils in the triumph of Aemilius Paullus after the battle of Pydna in 167 B.C. Thus, during the first half of the 2nd century B.C. Rome was deluged with gold staters of Macedon brought as the spoils of war, to which may probably be added part at least of the tribute payments and many from other sources. There can be little doubt that Rome used them in currency to supplement the silver coinage of the Roman mint.

GAULISH AND BRITISH COINS IN BRITAIN

Thus, the gold staters of Gaul took their model from the gold staters which were, in the middle of the 2nd century, the Roman, and, we may add, an international, currency. But it was not the course of trade through Marseilles, as might be expected, that was the connecting link; had that been so, the closest Gaulish copies of the stater would be found in the neighbourhood of Marseilles. It is the more central tribes of Gaul, the Aedui, Arverni, and Lemovices, that were the earliest imitators, showing that it was the direct intercourse between these tribes and Rome, which resulted from the victory of Ahenobarbus over the Arverni in 121 B.C., that introduced the stater into Gaul. It was towards the end of the 2nd century B.C., therefore, that the stater was imitated by Gallic tribes to create a native Gaulish currency.

This has an important bearing on the British coinage, for it gives a date very near the end of the 1st century B.C. as the earliest limit for the coinages of northern, *i.e.* Belgic, Gaul, which circulated in Britain and in their turn inspired a native currency here. While in recent years it has become more and more obvious that the British coinage must have had its beginning in the 1st century B.C., the history of its development has become more obscure by the widening of the gap between the British coinage and its parent coinage of Gaul. It is now evident that the gap does not exist, and it is possible, without misgiving, to bring the coinage into line with other archaeological evidence, which proves two Belgic invasions to have taken place in, approximately, the years 75 and 50 B.C.¹

The first Gaulish coinage which found currency in Britain is that which is attributed to the tribe of the Bellovaci, a Belgic tribe situate north of Paris with Beauvais as its capital (plate 1, 1). The weight of this gold stater is usually about 115 grains, but some specimens weigh as high as 120 grains; the corresponding quarter-stater is also sometimes found in England. In this country its distribution, which is shown on MAP 1, extends along the coasts of Essex, Kent, and East Sussex, and proceeds by the Thames and its tributaries into Kent and Surrey, and through Hertfordshire to the border of Bedfordshire and Buckinghamshire. The hoards, at Westerham in Kent, at Carn Brea in Cornwall, and (not marked on the map) somewhere in Essex, contained only very few specimens of this coinage among later issues. In addition to the sites marked, two coins have been found somewhere in Kent and one in Essex.

¹ See Hawkes and Dunning, *The Belgae of Gaul and Britain*, in *Arch. Journ.* 1930, LXXXVII, 150ff.

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The map bears a very close resemblance to that on which Mr Hawkes marked the find-spots of the pedestal-urns which are characteristic of the first Belgic invasion.² But the Bellovacian coins played no part in the development of the British coinage ; they did not inspire the Briton to imitate them nor did they have any direct influence on the types of the British coins. The find-spots should therefore be



MAP 1. DISTRIBUTION IN BRITAIN OF THE COINAGE OF THE BELLOVACI (Gaulish)

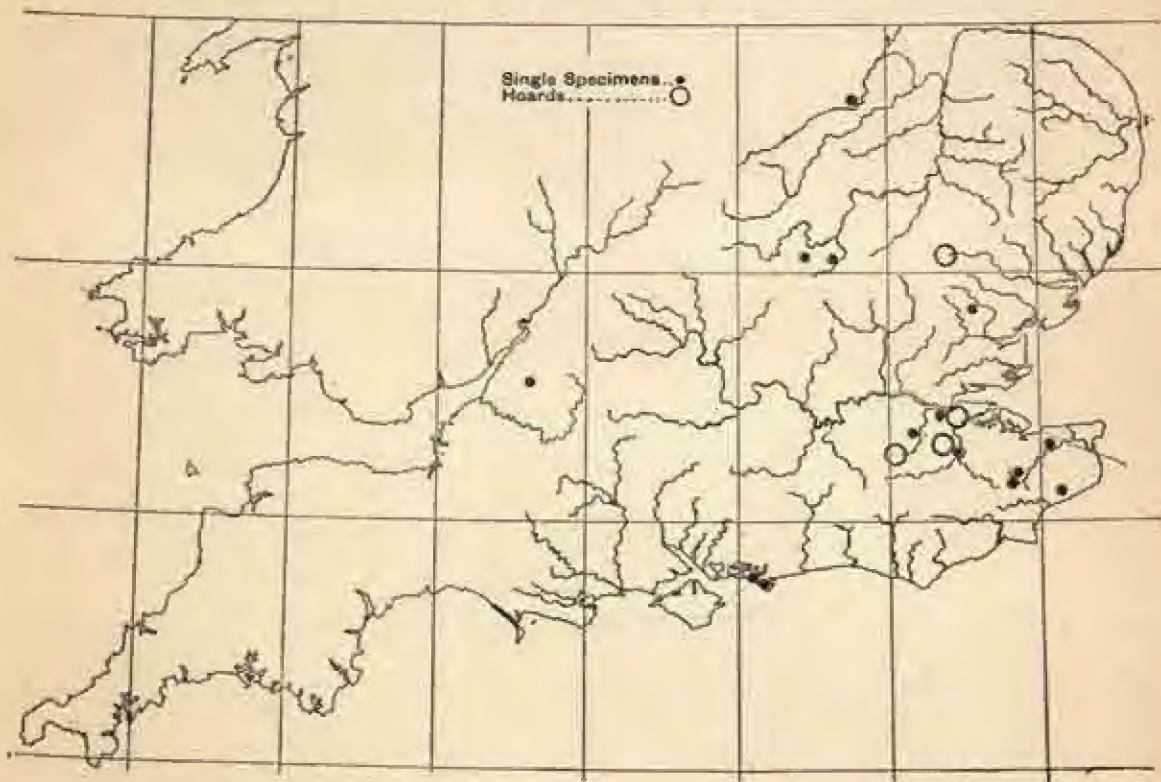
regarded as marking the course of trade and not the settlements of foreign invaders ; trade not unnaturally took the same routes as were later followed by the first Belgic settlers.

The coins of the Gaulish Atrebatæ, if they are correctly attributed to that tribe, were the true parent of the British coinage (cf. on plate 1, no. 2 Gaulish Atrebatæ, with nos. 3 and 4 British). Curiously enough,

² *op. cit.* p. 189.

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they are not frequently found in England, and consequently the find-spots (MAP II : one found in Yorkshire, near Pontefract, is not marked) are too scattered to afford much information. Their comparative rarity may be due to a temporary break in trade with Gaul during the periods of settlement and to the speedy introduction of a native coinage by settlers who had been used to coinage in their own country. The



MAP II. DISTRIBUTION IN BRITAIN OF THE COINAGE OF THE ATREBATES (Gaulish)

development from them of the true British type is unmistakable ; the obverse design, which is a meaningless stylism of the head, is almost identical on the two coins, but the reverse of the British coin turns the disjointed Gaulish horse into a formless assemblage of precisely similar curves and lines ; as one might expect, copying was unintelligent but careful. During the currency of this Gaulish type were buried the earliest hoards that have yet been unearthed in England ; a hollow

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flint, found in 1912 at Rochester, contained eleven specimens; at Haverhill in Essex, *c.* 1820, were found some fifty of them; in hoards from Ryarsh, from Westerham, and from somewhere in Essex single specimens of this type were found with later coins.

This may, I think, be accepted as the coinage of the first Belgic invaders, and its currency in Britain must therefore, on the evidence of other archaeological data, be placed after 75 B.C.



MAP III. DISTRIBUTION IN BRITAIN OF THE COINAGE ATTRIBUTED TO THE MORINI (Gaulish)

It was quickly followed in Gaul and in Britain by another type which differs only in the absence of any obverse design, the new Gaulish coin having a plain convex obverse. This has been attributed to the Morini, a backward coastal people who were unlikely to have had a coinage at this time; it is doubtless a slightly later development of the coinage of the Atrebatas. The spread of this coinage in Britain may be seen on MAP III; but perhaps a truer picture of the circulation in

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England of Atrebatic coins would be obtained by placing the find-spots of MAPS II and III on one map, which would show for the two types of the Gaulish Atrebates a distribution very similar to that of the coins of the Bellovaci, but spreading further into the uplands north of the Thames and more extensive on the Sussex coast.

The weight of the stater had already come down to 100 grains or even, in the series with plain obverse, slightly below that figure. The



MAP IV. DISTRIBUTION OF THE BRITISH ATREBATIC COINAGE (First Belgic Invasion)

greater frequency in Britain of the later of the two Atrebatic types may perhaps illustrate the revival of trade with Belgic Gaul as the settlers became established. The coinage of Britain modelled itself on the earlier type, and having adopted its obverse design did not abandon it under the influence of the later Gaulish type with a plain obverse; a more striking instance of this conservatism will be seen later when a new British coinage adopts another Gaulish reverse design but retains

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the original British obverse. It is noteworthy that the circulation of Gaulish coins in Britain is not balanced by a similar circulation of British coins in Gaul.

The Gaulish coinage of the Atrebates, having penetrated by the Thames waterways into the higher country both north and south of the Thames, was imitated by the British settlers of the first Belgic invasion. The native coinage thus formed (plate 1, 3, 4; and MAP IV) seems to have had a similar but wider circulation; northward it spread through Hertfordshire and Buckinghamshire into Northamptonshire, westward into Oxfordshire and even occasionally to the Severn valley; south of the Thames it lies along the north side of the Surrey hills. There is also a distinct group on the West Sussex and Hampshire coast. But the type had a long life, in the course of which it was debased into a silver and a copper currency, and in these metals, in the Wiltshire and Dorset district at least, it continued down to the second half of the 1st century A.D. For this reason it is difficult to read on the map of find-spots its early distribution in the 1st century B.C.; the very dense mass of silver and copper coins found in the Cranborne Chase region and at Hengistbury Head point to a Belgic settlement too conservative in their coinage to admit any outside influence. The Westerham (Kent) find was composed almost entirely of the gold coins of this type; at Carn Brea, Whaddon Chase, and Hengistbury they were in very small numbers. The Chute (Wiltshire) find of 65 similar coins in a hollow flint was of a late variety somewhat lower both in weight (93 to 95 grains against 96 to 100 grains of earlier specimens) and in specific gravity (11.4 to 12.4, against 13.5 to 14.5). This variety, distinguished by the 'crab' below the horse, seems to be a connecting link between the gold and silver coins indicating a late date and a south-westerly direction for the debasement; the only coin of the group recorded in the Whaddon Chase hoard is also of the late type. The silver and copper coins are only rarely found outside the Wilts-Dorset-Hants region.

This later appearance of the same type in baser metals in the West of England suggests that Belgic culture came to the Poole-Cranborne region not directly from Gaul, but from Kent, where the type doubtless had its original mint. Emigration from Kent to the West may well have been caused by the conquest of Kent by Eppillus, son of Commius (see pp. 283, 288). There is also pottery evidence of cultural connexion between Kent and this Western district (see Hawkes, *op. cit.* p. 308).



MAP V. DISTRIBUTION OF THE EASTERN COUNTIES GROUP AND COINS OF THE BRIGANTES

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A similar, but distinctive, coin-series developed at the same time in the Eastern counties, and there too the Gaulish coinage of the Atrebates was the prototype. The tendency for Gaulish coins to circulate in Essex and even into Norfolk is seen on MAPS II and III. The gradual development therefore of a coinage similar to the British Atrebatian type is natural enough, and a divergency of style is not surprising under the influence of Celtic tribes who had not yet been touched by Belgic culture. The interest of this Eastern group of coins lies in its gradual development into the well known Brigantian coins of the 1st century A.D., the origin of which was not previously understood.

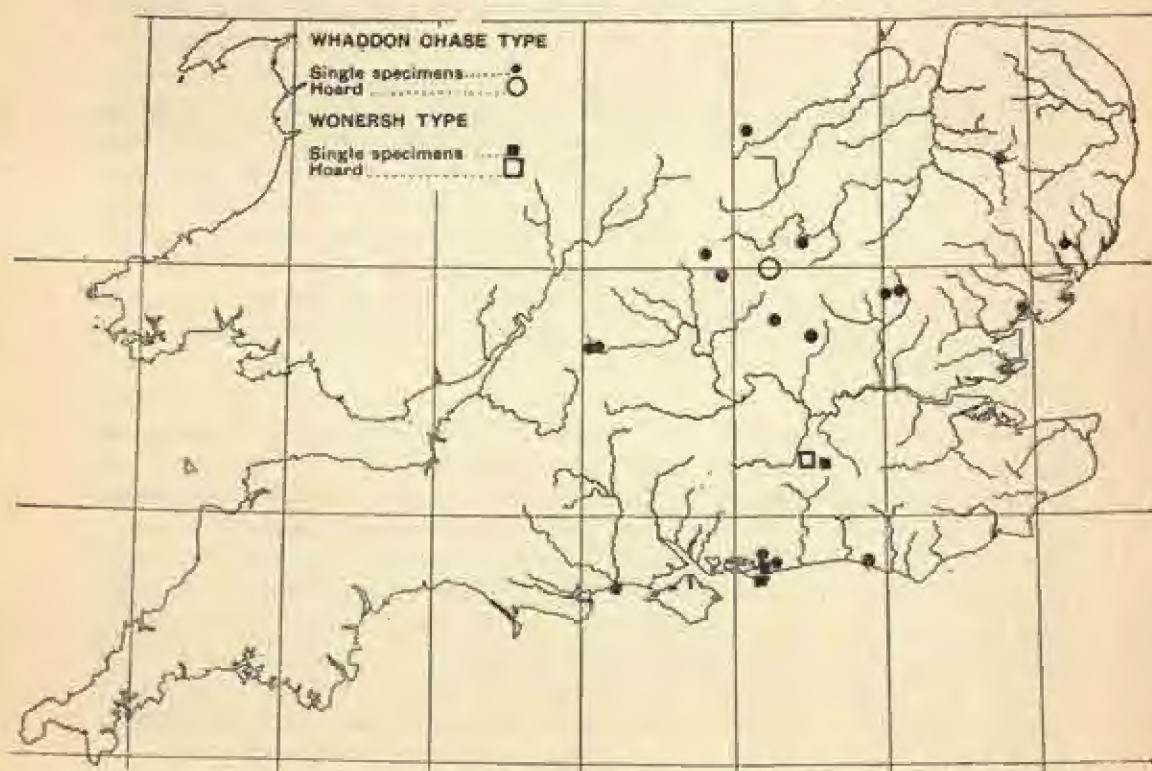
Specimens of the group are illustrated on plate 1, 5, 6, showing the chief peculiarities; the obverse design has an angular technique with square leaves to the wreath and angular crescents, and there is a sharp line down the front of the head; on the reverse an exaggeration of the curves of the horse develops ultimately into the entanglement which on the Brigantian coins (plate 1, 7, 8) is but faintly reminiscent of the horse's body; a rosette below the horse on some coins of the group survives as a star on uninscribed Brigantian coins.

The distribution of this series, shown on MAP V, suggests a gradual northward spread into Lincolnshire and Yorkshire, where ultimately the Brigantian coins circulated, and at the same time a side-route goes off into Norfolk with such peculiarities as the wolf-like horse of plate 1, 9. The Whaddon Chase find had only one or two specimens, but a hoard believed to have been found somewhere in Essex contained 70 of them with 36 Gaulish coins and five of the ordinary British Atrebatian type. This hoard, as its position in Essex is not known, is omitted from the map, as are also single specimens of the Eastern group found on the Yorkshire coast, somewhere in Norfolk (two coins), and at Southbourne in Hampshire. Two Brigantian coins have been found somewhere in Lincolnshire. The Brigantian find-spots are of gold coins only; no individual find-spots of Brigantian silver have been recorded, and the specimens at present known seem all to have come from the Honley (near Huddersfield) find, which contained only silver, and the South Ferriby (south bank of the Humber) hoard, which was of gold and silver. The two remaining Brigantian hoards, Lightcliffe and Almondbury (both in the Halifax-Huddersfield region), contained gold coins only.

The weight of coins of the Eastern group falls from just below 100 grains to about 85 grains in the latest specimens; the Brigantian gold is usually between 80 and 85 grains to the stater.

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We have already seen that the earliest British coinage, which we have named, from the Gaulish tribe to which its parent coinage is attributed, the British Atrebatie issue, continued in currency for a very long period as a localized coinage of the Cranborne Chase and Hengistbury area, where it became debased to silver and to copper with a parallel but slow degradation of type ; it reached the extreme limit of barbarity in the little cast copper coins found at Hengistbury Head.



MAP VI. DISTRIBUTION OF BRITISH COINS OF THE WHADDON CHASE (*Camvellaunus*) AND WOMERSLEY TYPES

In the district north of the Thames the type underwent a complete change about the middle of the 1st century B.C. The conventionalized head on the obverse gave up all pretence at being a head and became a cruciform design, its angles being occupied by two locks of hair from the crown of the head, a crescent curl from the forehead, and the shoulder drapery. On the reverse a realistic horse replaced the disjointed animal that had satisfied the early settlers in their first attempt

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at imitative coinage (plate 1, 10). This type is known to us chiefly through the Whaddon Chase hoard, which was discovered in 1849; it contained this new coinage and the British Remic type, which is described below, in the proportion of about three to one. It must have been a very large hoard; as many as 350 coins were collected by the landowner whose tenant ploughed them up. The few find-spots available beyond the site of the hoard seem to fringe the headwaters of the northern tributaries of the Thames (MAP VI; a specimen found somewhere in Oxfordshire is omitted), and it is probable that we may take the group lying between the Thame and the Lea as the central point of distribution. However, we have better evidence on which to establish the source of this coinage. The development of the coins, as seen on plate 1, no. 11, terminates in a type with a simplified form of the obverse design which is identical with that of the earliest coinage of Tasciovanus (plate 1, 12). Thus we get a direct coin-pedigree from the earliest settlers of the first Belgic invasion through the Whaddon Chase type to Tasciovanus, and the district which marks the centre of distribution of the Whaddon Chase type, the Verulam-Braughing area, is the most prolific site of Tasciovanus's coins.

Tasciovanus is a name unknown to history; the coins alone prove his existence and they also tell us that he was the father of Cunobeline and that he had a mint at Verulam. Coins on the other hand give us no hint of the existence of Cassivellaunus, who by his defence against Caesar became one of the most popular characters of early history. Indeed in years past this perverse contradictoriness of history and coins gave rise to the suggestion that Tasciovanus and Cassivellaunus were one and the same person; but it is not reasonably possible to identify the defender of Britain in 54 B.C. with the father of Cunobeline who died in A.D. 43. Beyond doubt the Whaddon Chase type is the coinage of Cassivellaunus. Its association at Whaddon Chase with the British Remic type, which, as we shall see, was the coinage of the second Belgic invaders, indicates a date about the middle of the 1st century B.C., for its circulation, and the wheel which occurs on some of the coins is probably derived from the influence of the Remic coins. The latest variety, as we have seen, connects the Whaddon Chase type with an inscribed coinage bearing the name of Tasciovanus.

South of the Thames the Cassivellaunian type develops into a series with a wheel below and a large sun above the horse (plate 1, 13). A hoard of these coins was found in 1848 at Womersh, near Guildford, but apart from the hoard scarcely any specimens have been recorded

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(see MAP VI), and of the hoard itself, which was buried in a hollow flint, we have no details except that the type which we name from it formed the greater part of it. A southward direction, as the map suggests, in Surrey and Sussex, is the likely centre of this coinage. In a type which is rarely found elsewhere than on the Sussex coast, and then in Surrey or Sussex (plate 1, 14), Womersley characteristics, the sun for example, and the rosette in front of the horse turning into the pole which distinguishes the Sussex group, are blended with definite Remic features.

The second Belgic invasion is dated to about the year 50 B.C., and is connected with the name of Commius, the king of the Gaulish Atrebates, who took part in the revolt of Vercingetorix, was defeated at Alesia in 52 B.C., led another unsuccessful revolt in the following year, and then took to guerrilla warfare. On his surrender, Caesar tells us, his petition was granted that he should not have to meet a Roman face to face again. Frontinus relates the story of his escape to Britain pursued to the French coast by the Romans.

British coins bearing the name of Commius are known. They offer a new presentation, though still a disjointed one, of the horse in the reverse design; it has a triple tail and is accompanied by a wheel, not the old chariot-wheel which had long since been degraded to an eye-ornament below the horse's tail, but a real wheel placed beneath the horse's belly (plate 1, 17). The original model of this style of horse may be found in a Gaulish coinage which is doubtfully attributed to the Remi but was certainly issued by one of the tribes of Belgic Gaul. The obverse of the Gaulish coin (plate 1, 15), has, set in the conventional head-design, a peculiar ornament, an eye in a large v-shaped frame, which on later coins occupies the whole field, ousting the normal head design. This obverse is never copied on the British coins, but the Gaulish reverse is adopted intact to accompany the old British obverse design. The Remic staters (accepting the name for differentiation, though their attribution to the Remi is doubtful) are rarely found in Britain; the discovery of one at Whaddon Chase, perhaps originally in the hoard, is the only record I know of British provenance.

There is quite a considerable coinage, which forms a connecting link between the Remic coins and the coins that bear the name of Commius. Their reverse copies to perfection the reverse of the Remic staters, the triple-tailed horse with a wheel below, but the obverse either retains the older form of the conventionalized head or, like the so-called Morinic coins of Gaul, has a plain convex surface without any

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design (plate 1, 16). In weight the British coins, which for convenience may be called the British Remic type (as opposed to the British Atrebatie type, the coinage of the first invasion), differ very little from the Gaulish. The Gaulish coins are recorded at 92 to 95 grains, the British weigh 91 to 94 or, with plain obverse, 90 to 92 grains. Similarly in the Atrebatie series the earliest British coins were struck at the weight of the Gaulish staters. But the staters of Commius, though they differ from the uninscribed staters only in the form of the stylized curls on the head, turn the scales at 82 to 84 grains, a weight slightly lower than that of the coins of Cassivellaunus, but level with those of Tasciovanus and the Womersley type. If, as is the natural explanation of this series, the uninscribed coins are the earliest issue of the second Belgic invaders, their weight, which is much in excess of the contemporary coinage of Cassivellaunus, is difficult to explain, and it is not made easier by the steep drop in weight of the coins of Commius, who is regarded as the leader of the invasion. It is possible that a coinage, originally based by the new settlers on the standard of their parent tribe in Gaul, was quickly lowered to the level of existing British coins, namely the Whaddon Chase and Womersley types. The other possible explanation is that the earliest settlers of the second invasion came a few years before Commius himself arrived, in fact before Cassivellaunus developed his coinage from the earlier British Atrebatie type.

However this may be, the British Remic type formed a new coinage based on a fresh model from Belgic Gaul; the spread of the uninscribed coins lies along the southern bank of the Thames between Maidenhead and Reading, centred perhaps on Calleva,³ and thence spreading to the head-streams of the river; on the lower Thames no specimens have been found; a few have been discovered on the Sussex coast (MAP VII; a specimen has also been found somewhere in Northamptonshire).

In the Thames watershed the circulation of the British Remic coins meets the issues of a Cotswold group (MAP VIII) which is characterized by a new obverse design, a stylized corn-ear (?). A few specimens of the Cotswold coins are uninscribed, and the remainder bear names unknown to history: Antedrigus, Comux, Catti, etc.; the latest bear in place of the corn-ear the name Bodvoc across the field of the obverse (plate 1, 18, 19). There is a parallel coinage in silver, both uninscribed and inscribed; the type is a very degraded, hardly

³ But the signature *Calle* on coins of Eppillus cannot be identified with Calleva. See p. 283.

PLATE I

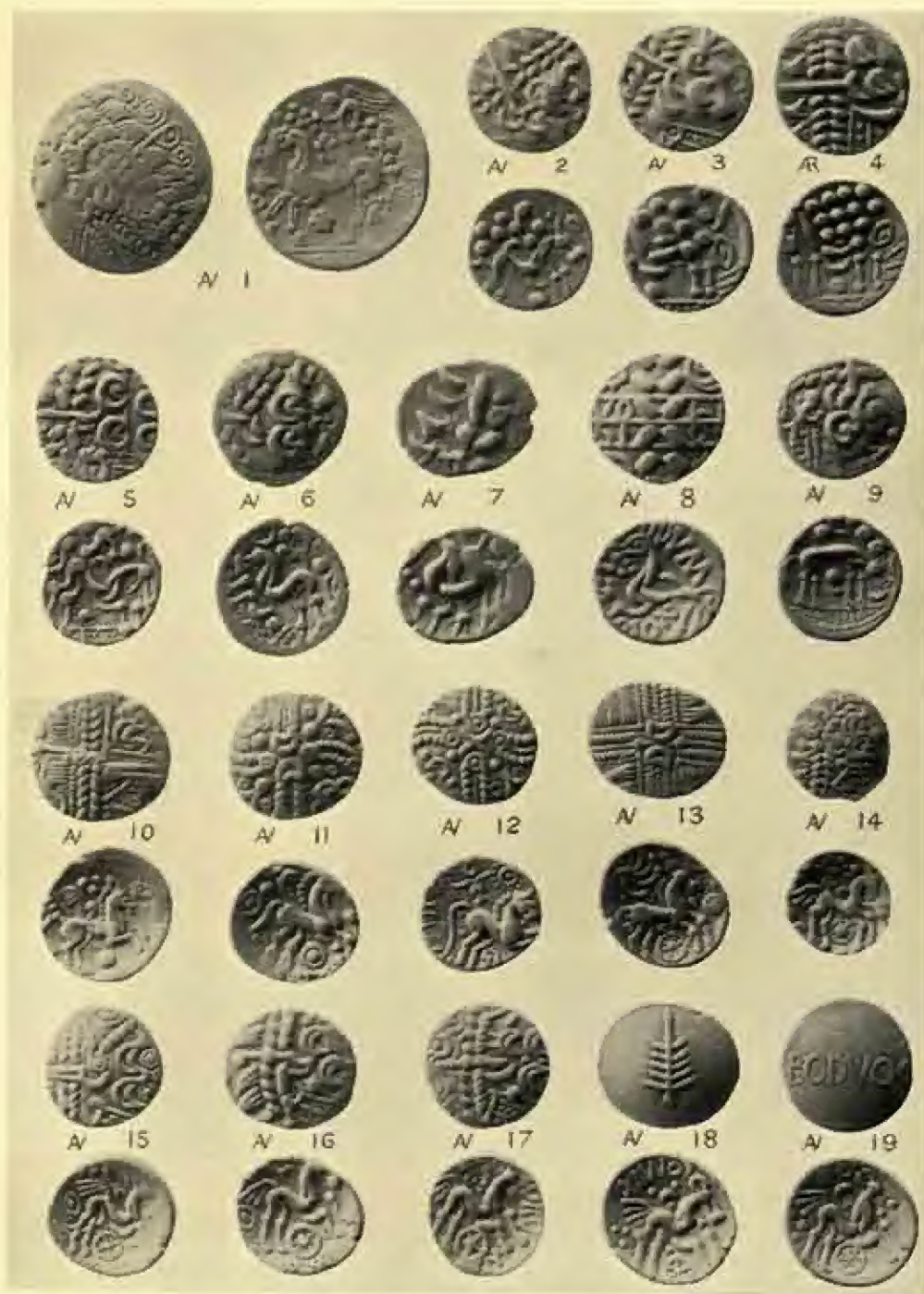
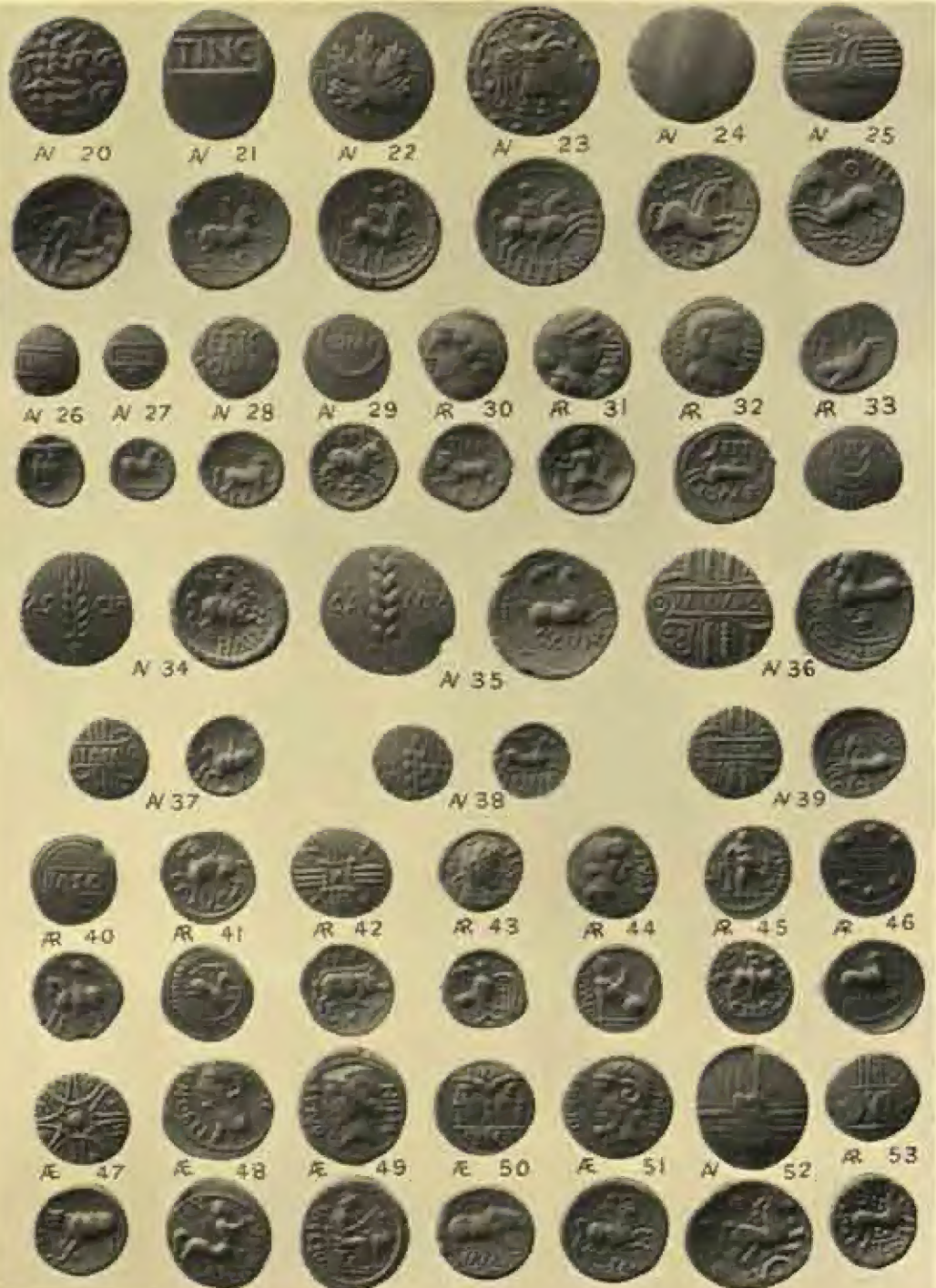


PLATE II



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recognizable, profile head, and a disjointed horse ; but the Bodvoc silver has a head and a horse of new style showing Roman influence.

The centre of this group seems to lie in the Malmesbury-Cirencester region with a circulation across the Cotswolds from the Thames to the Severn and also southwards in the shape of a wedge with the apex at the point of Somerset, Wiltshire and Dorset. It is



MAP VII. DISTRIBUTION OF BRITISH REMIC COINS (Second Belgic Invasion)

therefore a coinage of the Dobuni, a tribe of the old Celtic stock, imitating the coins of the second Belgic invaders which found their way to the upper reaches of the Thames. Though the uninscribed staters weigh between 85 and 87 grains, the inscribed are only between 80 and 85 grains. It is a distinctly late group of coins ; the hoard of gold and silver of this class found at Nunney in 1860 contained also Roman coins of which the latest was a denarius of Caligula attributed

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to the year A.D. 37. Silver coins of this type were found at Hengistbury Head; uninscribed gold at Mount Batten, near Plymouth, and inscribed gold at Sherborne. The southern limit of circulation is reached where it comes into contact with the localized currency of the British Atrebatie group in the Cranborne Chase area (cf. MAPS IV and VIII); south of this point the coins occur only in hoards. Here the conservatism



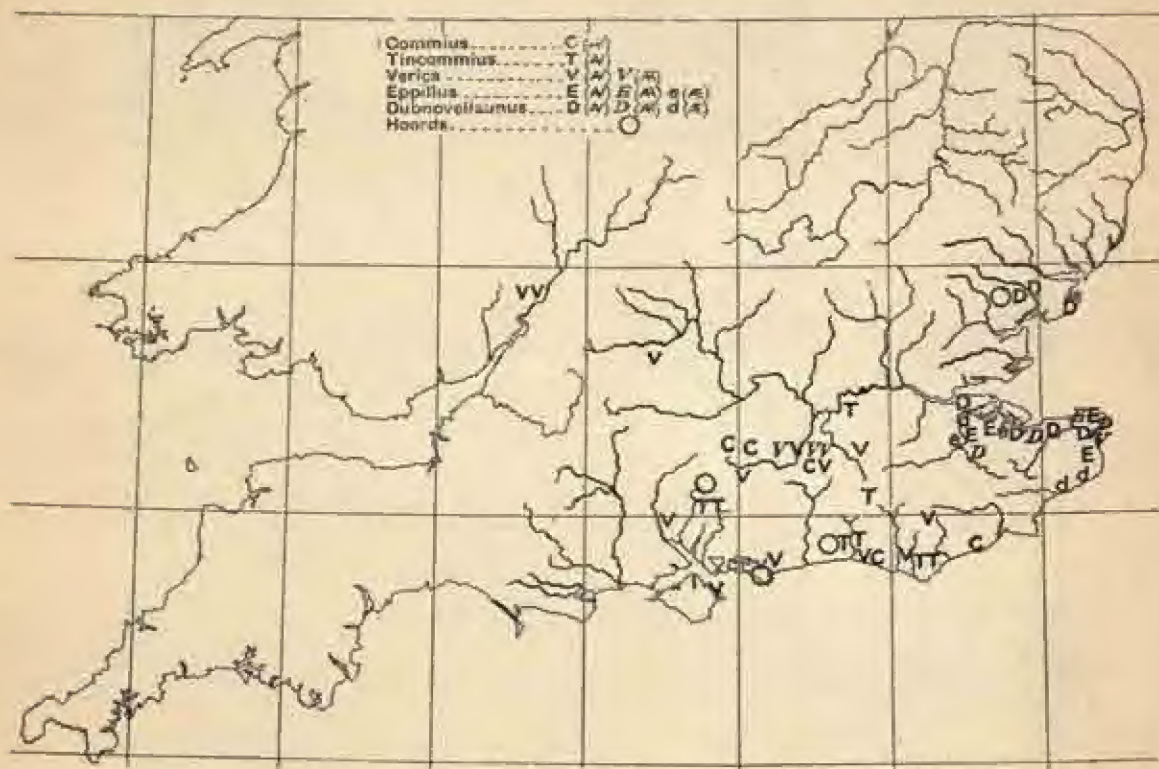
MAP VIII. DISTRIBUTION OF COINS OF THE DOBUNI

of the Kentish-Belgic culture refused to admit the coinage of the Dobuni into circulation.

Three British kings, Tincommius, Verica, and Eppillus, bear on their coins the title *Commi filius*. The earliest issue of Tincommius retains the type of his father's coins (plate II, 20), but otherwise the three brothers adopted Roman types in both gold and silver, and Eppillus in copper also (see plate II, 20-23, 26-33). The distribution of

GAULISH AND BRITISH COINS IN BRITAIN

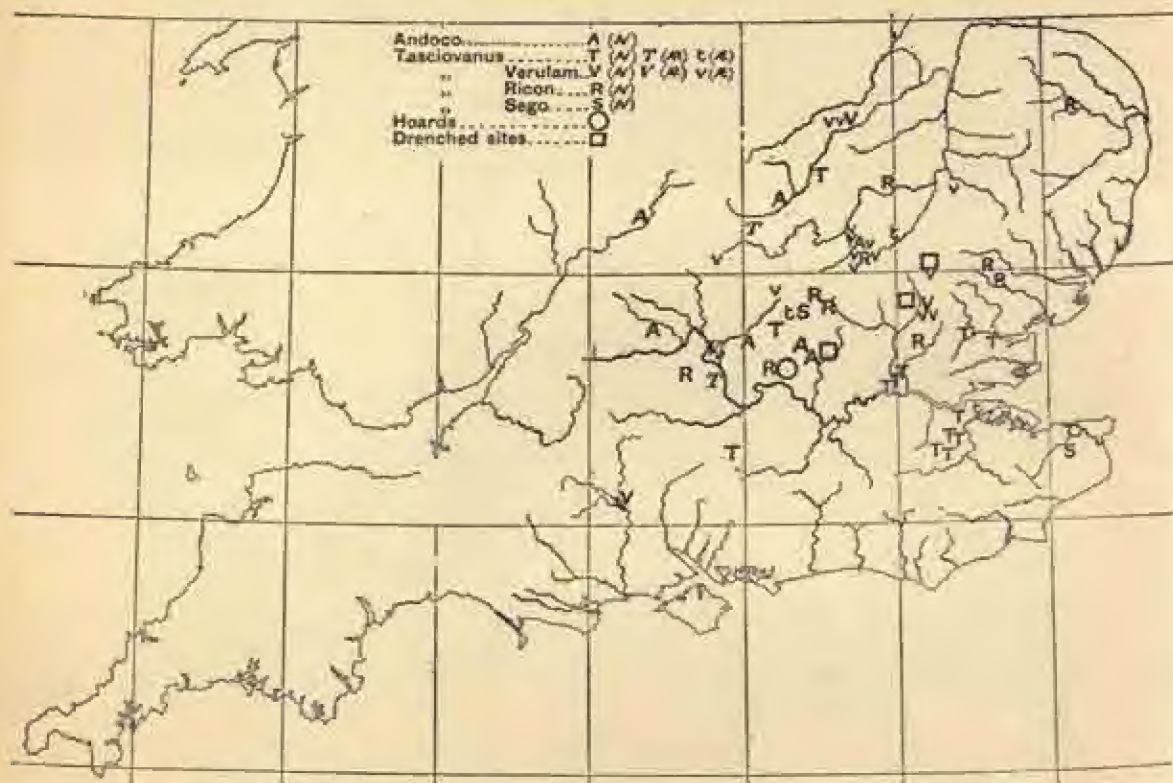
their coins (MAP IX; single specimens of gold coins of Tincommius, Eppillus, and Dubnovellaunus, and a silver coin of Eppillus have been found somewhere in Kent, and a gold coin of Tincommius somewhere in Sussex), shows clearly a separate kingdom of Eppillus in Kent along the northern side of the North Downs, which, incidentally, precludes the attribution of the signature *Calle* on his coins to *Calleva Atrebatum*



(Silchester). The kingdoms of Tincommius and Verica are less easily interpreted on the map. The more northerly district, along the line of the Surrey Hills, has produced gold and silver coins of Verica but none of his brother; here we may presume Tincommius never held sway. But on the Sussex coast, and in the strip that seems to connect these two kingdoms through Southampton Water, coins of both are fairly evenly distributed. The corridor to the sea was perhaps

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Verica's alone, for two coins only of Tincommius, found in the neighbourhood of Winchester, lie within it, but Verica has to his credit a hoard of staters from Alresford and single specimens from Alton, Romsey, Ryde (Isle of Wight), and near Portsmouth. The two brothers share fairly evenly the find-spots in the coastal region, and coins of both, those of Tincommius in greater number, are among the many



MAP X. DISTRIBUTION OF THE COINS OF ANDOCO AND TASCIOVANUS

gold coins which have been found from time to time on the Selsey-Bognor shore and which probably belong to a large hoard originally buried in the cliff, and silver coins of Verica, with possibly a few of Tincommius, were in the Lancing Downs find. We may reasonably conjecture that a kingdom between the South Downs and the sea passed from Tincommius to Verica, who was already king of the Surrey Hills district.

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In the country north of the Thames the kingdom of Cassivellaunus passed, apparently after a brief reign of 'Andoco-', into the hands of Tasciovanus (MAP X. A copper Tasciovanus is recorded somewhere in Berks; Verulam copper at South Shields, somewhere in Herts, and somewhere in Hunts). The interesting feature of the coinage of Tasciovanus is the complete barrier that the Thames formed to its



MAP XI. DISTRIBUTION OF THE COINS OF EPATICCUS AND CUNOBELINE

The framed letters show sites drrenched with the coins

circulation except in the portion of Kent between the Darenth and the Medway, a strip of country which seems to be devoid of coins of the Commius family.

Tasciovanus had, the coins tell us, two sons, Epaticcus and Cunobeline. Some of the types struck by this family are illustrated on plate II, nos. 34-51, for comparison with the coinage of the Commius family. Detailed comment upon them is not necessary here; the

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distribution of their coins, with which we are at present concerned, may be seen on MAP XI.

Epaticcus, so far as we know, struck only gold and silver, and his coins are rare; the map therefore does not give a clear picture of the district he ruled, but it is remarkable that he is the only one of the family whose coins lie in the realms of Tincommius and Verica (one gold coin of Tasciovanus and one copper coin of Cunobeline are the only exceptions). This fact is surely significant, and it is also significant that of his few coins the remainder have been found on the eastern boundary of the Dobuni. It is noteworthy too that we know no copper coinage of Epaticcus; copper seems to have been confined to the Catuvellaunian and Cantian kingdoms; none is known of Tincommius or Verica. May we perhaps regard Epaticcus as a wanderer in search of a kingdom, driven out of his father's land by his more powerful brother, founding a settlement on the border of the Dobuni, and later with more success invading the territory of Verica, son of Commius? His coins have never yet, so far as I know, been found within the dominions of Tasciovanus and Cunobeline. In Savernake Forest a few of his coins were found in fine condition with some very base imitations of the British Remic staters and a denarius of Tiberius of c. A.D. 25-30, which was so worn as to indicate long circulation before its burial.

The coins of Cunobeline are spread more thickly over the same area north of the Thames as those of Tasciovanus (*cf.* MAPS X, XI. A gold coin of Cunobeline has also been found somewhere in Nottinghamshire); in addition there is a drenched site at Colchester, where he had his only mint,⁴ and also in Kent, where, perhaps by coincidence only, his coins have not yet been found in that area between Darenth and Medway which contains the only group of Tasciovanus's coins south of the Thames.

The Kent and Essex areas are especially interesting. In both of them we have to take into account the coinage of Dubnovellaunus, shown on MAP IX, and his coins are the key to the position. They are of two distinct types; one, figured on plate II, 25, has a horse closely resembling that of Cunobeline but with the palm-branch below it (*cf.* plate II, 35); the other (plate II, 24), with a plain obverse field crossed by two parallel incuse lines, is very near the Andoco- and early Tasciovanus gold not only in the style of the horse but in the ornaments,

⁴ Unless a few copper coins bearing no mint signature are to be assigned to Verulam; this is unlikely.



MAP XII. DISTRIBUTION OF COINS OF THE ICENI

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a bucranium and a scythe or wind-instrument (?), which accompany it (cf. plate I, 12, and II, 24). The former type is always found in Essex, the latter always in Kent.

The Kentish coinage of Dubnovellaunus was, therefore, struck in imitation of the early coinage of Tasciovanus, of which we have already traced the pedigree; his Colchester coinage was the predecessor of the coinage of Cunobeline. Tasciovanus preceded him in Kent, Cunobeline followed him in Essex. The relative position of Eppillus, whose coins are found only in Kent, is not easy to determine; it is by no means certain whether he should be placed before or after Dubnovellaunus. Copper types used by Eppillus imitate Roman coins which were struck at Lugdunum between 15 and 10 B.C., but the whole coinage of Dubnovellaunus seems at least to derive its inspiration from, if not directly to imitate, the gold, silver and copper of Tasciovanus, and the inscription of his name as a suppliant on the Ancyra monument only tells us that he was a contemporary of Augustus. At Colchester Dubnovellaunus must have been in occupation down to the time of Cunobeline's accession; but if, as may well be, Cunobeline occupied the kingdom at Colchester during his father's lifetime, this again is no guide to the relative positions of Eppillus and Dubnovellaunus.

On the whole the balance of evidence seems to be in favour of regarding Eppillus, son of Commius, as being the earliest king to introduce a named coinage into Kent. Tasciovanus probably drove him out and put into circulation his own coins, which thus became the model for the coinage of his successor, Dubnovellaunus, who presumably came there by conquest and already had a kingdom at Colchester. Cunobeline seized both kingdoms, retained for his own use Dubnovellaunus's mint of Colchester, and supplied the Kentish kingdom, and ultimately also the great kingdom north of the Thames, with coins from the Colchester mint.

The last map of the series, MAP XII (add an Icenic gold coin somewhere in Norfolk, an Icenic silver coin somewhere in Suffolk), shows the distribution of the Icenic coins, and completes, in conjunction with MAP V, the coinage of the Eastern Counties. This group includes a large series of silver coins inscribed *Ateth*, *Atth*, *Ated*, on which the letters *At* have been read, unnecessarily I think, as the three letters *Ant* in ligature (plate II, 53). In this way the name has been assumed to be Antedrigus by analogy with the king of the Dobuni, and a story has been woven round the supposed identity of name, making the Icenic

GAULISH AND BRITISH COINS IN BRITAIN

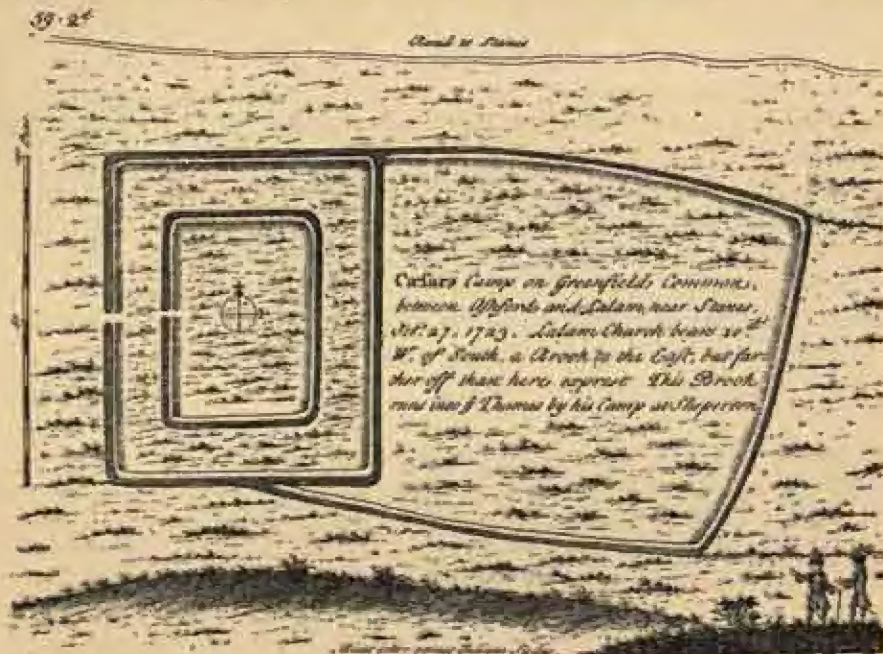
king retreat after the defeat of the Iceni by Ostorius Scapula in A.D. 47 and found a kingdom, or be admitted to sovereignty of the existing kingdom, in the Cotswold country. If we accept the natural reading *Ateth* or *Ated* and admit the interchange of the letters τ and δ (*Dias* for *Tas* occurs on a coin of Tasciovanus), there is no difficulty in assigning these silver coins to Addedomaros (a stater of Addedomaros is illustrated on plate II, 52), whose plentiful gold coinage without silver seems curiously lopsided in the Icenic series which is so plentiful in silver coins.

The Icenic coins ceased presumably on the conquest of the Iceni by Ostorius Scapula in A.D. 47. Among the Brigantes, British coins continue to Cartismandua, whose rising in A.D. 69 was quickly followed by the reduction of the Brigantes by Cerealis and their subjection to Rome. In the south the latest British coins are the issues of Cunobeline; he died immediately before the Claudian invasion in A.D. 43. The Surrey and Sussex area was perhaps seized from Verica, son of Commius, by Epaticcus, brother of Cunobeline, and his coins are the latest in this district. Of the Dobunic coinage we only know from the Nunney hoard that it was in circulation in A.D. 37 and probably later. The Cranborne Chase-Hengistbury region seems to have retained its base local currency into the second half of the 1st century A.D. Roman conquest was very speedily followed in all districts by the withdrawal of British coins from currency.

Some Recent Air Discoveries

described by O. G. S. CRAWFORD

TWO hundred and ten years ago 'old Stukeley', the Archdruid, (then 36 years of age) made a famous discovery on a heath near London—nothing less than one of Julius Caesar's camps. At least Stukeley liked to think it such, and to embroider his treasure with many fanciful imaginings. 'Here he received the ambassadors of the



CAESAR'S CAMP ON GREENFIELD COMMON, MIDDLESEX
From Stukeley's *Hinerrarium Curiosum*, 1776

Trinobantes, desiring their prince Mandubrace to be restored. . . . Another day came in ambassadors from the Cenimani, Segontiaci, Ancalites, Bibroci and Cassi'. True to his laudable custom, he made a rough plan of the 'camp', which shows that it was, according to his own measurements, 100 by 80 paces, and contained within it another

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similar enclosure. There was also an irregular eastern annex, 100 paces by 130, designed for the accommodation of the second lot of ambassadors !

Stukeley's plan (reproduced here) gives just the bare minimum of information necessary to locate the position of his discovery. Greenfield Common has long ago vanished, but it is shown on Rocque's map of Middlesex (1776). It lay about a mile southeast of Staines. There seemed just a possibility that the earthwork in question might really be a Roman camp, though perhaps the plan hardly justified this optimism. It was at any rate a lost earthwork and its recovery was obviously desirable. The first step was to visit the site, and this I did on 31 May 1925. I found the ground uneven and the crops streaky, so far as a ground-view enabled one to see them ; and there were, as usual, a few pot-boilers. But beyond this there was nothing to indicate anything of the nature of an earthwork.

This first attempt being a failure, it remained to try the air, but no opportunity occurred for five years. Then, on 23 June 1930, at the end of a long flight from Scotland already referred to in *ANTIQUITY* (IV, 277) just before landing at Hendon we flew over the spot and to my great joy I saw the two ' boxes ', one inside the other, just as they were portrayed by Stukeley. But merely to see it was not enough ; photographic record was essential ; and at the time this was not practicable.

Three years went by, and one began to fear that the site, so strangely recovered after two centuries of oblivion, would fade once more from memory, this time probably for ever. For the rising tide of villadom had almost reached it, ; within a few yards is a neat row of residences, each with its back garden encroaching upon the field ; and it would only be a few years before the whole was engulfed. Fortunately it has been saved from this fate in the nick of time by Major G. W. G. Allen, who has been devoting himself with great success to the discovery and collection of crop-sites (and others) from his aeroplane. The air-photograph reproduced here (plate 1) was one of three taken by him on 15 April last, and is reproduced here by his permission, together with some others, which I have undertaken to describe for him.

' Caesar's Camp ' has now been put back on the map, and in a way that Stukeley could never have foreseen even in the wildest flights of his imagination—and that steed was a Pegasus that soared into some strange unearthly realms ! We are forced, however reluctantly, to eliminate Caesar from the scene ; the star of Julius never shone on Greenfield Common. The earthworks have none of the characteristic

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features of a Roman camp. The ditches are far too narrow, and the corners far too angular. What it is, however, we cannot say. The nearest analogy is another crop-site in Kent, between Canterbury and Dover, discovered and photographed last year by an officer of the Royal Air Force then stationed at Manston (plate II). The enclosure is again of the double-box type, and it lies close beside the Roman road, which is plainly revealed on the photograph. The outer side is exactly parallel to, and within a few feet of, the side-ditch of the Roman road; and it seems impossible to believe that it can be anything but contemporary with the road. There are no surface indications either of the earthwork itself or in the form of potsherds or other relics.

Perhaps this may seem a tame ending to a quest which began so romantically; perhaps it is. But it need not be the end. Before the final obliteration comes, a few days' work with the spade would probably determine the age and character of the ditches revealed by the photograph. It would not be a job for anyone but a digger of some experience, however; for the chance of datable finds is not very great. We must leave it at that, with a tribute to the enthusiasm and success of Major Allen who rescued it from oblivion.

The dry spring has been exceptionally favourable for observing soil-marks, for it has 'developed' the latent differences of tone and colour in banks that are under plough. Those markings that are not always responsive to crops have been revealed. This has been particularly noticeable in Fenland. The ancient river-channels were visible with extraordinary distinctness at Easter when I had a flight over part of the area, and the Roman field-system of Gedney Hill in South Lincolnshire was actually as plainly visible as the existing fields, if not more so. A mosaic of air-photographs will be obtained of a portion of Fenland during the present summer, through the cooperation of the Royal Air Force. Without a complete air-survey of the whole region, no satisfactory history of it is possible; but it is hoped that this may be secured during the next few years. Fenland is one of England's best palimpsests, and a good air-photograph there has all the value and interest of a historical manuscript, with the added advantage that it is possible to manufacture them to an almost unlimited extent.

Just on the border of Fenland Major Allen has recovered what is virtually a new Roman road (plate III). Though marked as such on the 6-inch Ordnance Map, it has not hitherto been authenticated, and it does not therefore appear on the map of Roman Britain. It runs in a

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northeasterly direction from Durobrivae, and may be the western portion of the Fen road from Norfolk.

But Major Allen's best discoveries this year have been made in the Upper Thames district. It was already known that the gravel flats between the lower Windrush and Evenlode rivers, immediately north of the Thames, were prolific in crop-sites, mainly barrow-circles; and the reason for this had been suggested some time before by Mr Thurlow Leeds, V.-P.S.A. The natural conditions were those which exactly suited prehistoric man, and he therefore settled here in large numbers. The air-photograph here reproduced (plate IV) records remains of three periods—the circles belong to the Bronze Age and represent the ditches of barrows which have been destroyed by cultivation; the straight dark lines below the trees on the left are the remnants of a later but still prehistoric field-system; and the parallel lines, set closely together, in the same field (and also at the top of the photo.) are the remains of medieval ridge-and-furrow cultivation.

There are no less than 26 circles (or ovals) visible on this photograph, all of them new discoveries recorded for the first time by the air-camera. As usual, in the centre of some can be seen a small dark spot, marking the site of the pit where the burial is. In the centre of the picture is a circle of an unusual kind; and on its left a flattened oval. Immediately above the latter is an egg-shaped enclosure of a kind that occurs fairly frequently on air-photographs.

In addition to the circles one can see quite plainly the remains of the medieval ridge-and-furrow system, represented on the photograph by parallel striping. These stripes are seen most plainly in the field on the left, below the trees. Now we have at the Ordnance Survey, amongst our collection of photographs of old cadastral plans, one of this area made from an actual survey in 1615. A careful comparison of this map with the modern 6-inch map (Oxon. 32 SE), by means of measurements and transference of detail, shows, what is evident also from the air-photograph—namely, that several of these circles fall upon 'ridge-and-furrow' land which formed part of the arable in 1615. There is little doubt that arable in 1615 was also arable for some years, if not centuries, before it; yet these circles have persisted. On the other hand, the land on the right of the photograph is called Barrow Hill on the map of 1615, showing that mounds were visible there at some earlier date. The same map marks a spot across the road (in the top right-hand corner of the photo.) by the name of Deadman's Burial. No circles can be seen at this spot.

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On plate v is a smaller group of circles just outside the village of Stanton Harcourt, which is seen on the left. The most remarkable feature of this photograph, however, is the dark kidney-shaped figure near the centre, to the right of a sandpit. It surrounds three dark spots; and other spots are thickly scattered over a wide belt below it. What is the explanation of them? I do not think they are of modern (agricultural) origin. Their distribution in the field is against this; and they seem, moreover, to be associated with an irregular line which clearly passes into the field beyond, and has therefore no relation to modern conditions. Further, in the long narrow field below on the left can be seen a small white spot; this is one of the three Devil's Coits, standing stones. Their origin and purpose is unknown, but they have always, and no doubt rightly, been regarded as megalithic monuments of prehistoric age.¹ One of the others was shown by an air-photograph taken in 1928 to be surrounded by a wide, roughly circular ditch.² It seems possible therefore that the kidney-shaped enclosure, though smaller, surrounded other standing stones, now gone, whose site is marked by the dark spots. It is hard to believe, however, that all the other spots mark the site of standing stones; such a Carnac seems unlikely in this almost stoneless district. If I may chance a long shot I should say that the galaxy of spots represents either the site of *wooden* posts of a funerary character, or a late Bronze Age urn-field, or possibly a combination of both.

In the two fields below the village are circles and lines of an irregular pattern. Immediately above the village and to the right, the remains of the medieval common fields of Stanton Harcourt can plainly be seen; the ridge-and-furrow system is quite well brought out.

On the right of the photograph, below the cross-roads, is a gravel-pit; and to the left and below are numerous crop-marks.³ One is a double circle, of the kind we have tentatively suggested may have been a bell-barrow. To the right of it are parallel lines which may represent prehistoric field-boundaries. In this gravel pit three beakers, a food vessel, part of a collared urn and other remains were found in 1929 (*Antiquaries Journal*, 1931, XI, 59-60). It is much to be desired that excavations should be undertaken ahead of the gravel diggers, so that the interments in some of the principal circles at any rate may be

¹ See my *Long Barrows of the Cotswolds* (Bellows, 1925) p. 212.

² Major Allen reports that this circle is only partly visible this year.

³ Major Allen has taken a special photo of this, but we have not reproduced it here.

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extracted under proper supervision. One would also like to know the age and contents of the parallel lines.

Finally, plate VI shows a crop-site of an enigmatical character. It is in the big bend of the Thames between Dorchester and Long Wittenham, three-quarters of a mile ssw of Northfield Farm (Berks 10 SE, 11 SW). Close to this spot the Ordnance Map marks 'Site of Littleton, destroyed A.D. 1838'; it is probable that in reality it was no more than a manor-farm, and that the position has been wrongly recorded on the map. The crop-marks here reproduced suggest the skeleton outlines of a farm-yard and buildings; in the foreground are the two parallel lines representing the ditches bounding a road. It is interesting to note however that a much earlier circle—just beyond the entrance—has been overlaid by a later lay-out. Another circle can be seen some distance beyond. There are plainly two periods represented here, whatever the date of the later one may be.

The neighbourhood of Northfield Farm is interesting for another reason. It is one of the places where crop-marks were first scientifically studied. Close by, about the year 1899, the late Professor Haverfield and Professor J. L. Myres mapped a series of crop-marks on a Romano-British habitation-site discovered by the former. This mapping was partly done by means of the weeds in the stubble, after the corn had been cut, and the remarkably accurate plan drawn was published first in *Proc. Soc. Ant. London*, ser. 2, vol. XVIII, 10-14 and again in the *Victoria County History of Berks*, vol. I (1906), p. 221. The Ordnance Survey has an air-photograph of this site, taken in 1928, but it is hardly good enough to reproduce. Major Allen has secured better ones which will be published in due course.

It may be added, as a point of minor historical interest, that it was Professor Haverfield's remarks^a on crop-marks in the Radley district which caused me to ask the R.A.F. to take air-photographs of this region. It is yet another tribute to his genius that observations made before the invention of aeroplanes should later have borne fruit so abundantly and in such a striking fashion.

In addition to the sites referred to above Major Allen has made many new discoveries this year which can only be briefly mentioned here.

WANSDYKE (Berks 41 SE). He has discovered an extension of about 400 yards, south of Old Dyke Lane in Inkpen, Berks. This extension definitely crosses the alleged 'swampy' valley where it

^a *Proc. Soc. Ant., London*, 2nd series, XVIII, 10 ff.

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was supposed by Mr Albany Major to end ; but it does end here abruptly, just beyond. This new portion is the most easterly fragment known.

CALLOW HILL, OXON.⁵ (21 SE). The site has been thoroughly photographed, and one or two new features discovered.

LEES FARM, CHARLBURY, OXON (21 SW). Northeast of the farm Major Allen has found a new earthwork with rounded corners. It may represent the site of 'le Forsakene-ho' of A.D. 1298.⁶

BECKHAMPTON, NEAR AVEBURY, WILTS (28 SW). A group of at least six barrow-circles on the hill beside the road from Beckhampton to Avebury. One, and the site of another, were previously known and replaced on the Ordnance Map during the last revision (1925 edition of the 6-inch), making eight in all. All the rest are new.

Major Allen also examined the field in which Adam and Eve stand, but saw no signs of a circle or any other marks there.

ROLLRIGHT, OXON. No marks seen.

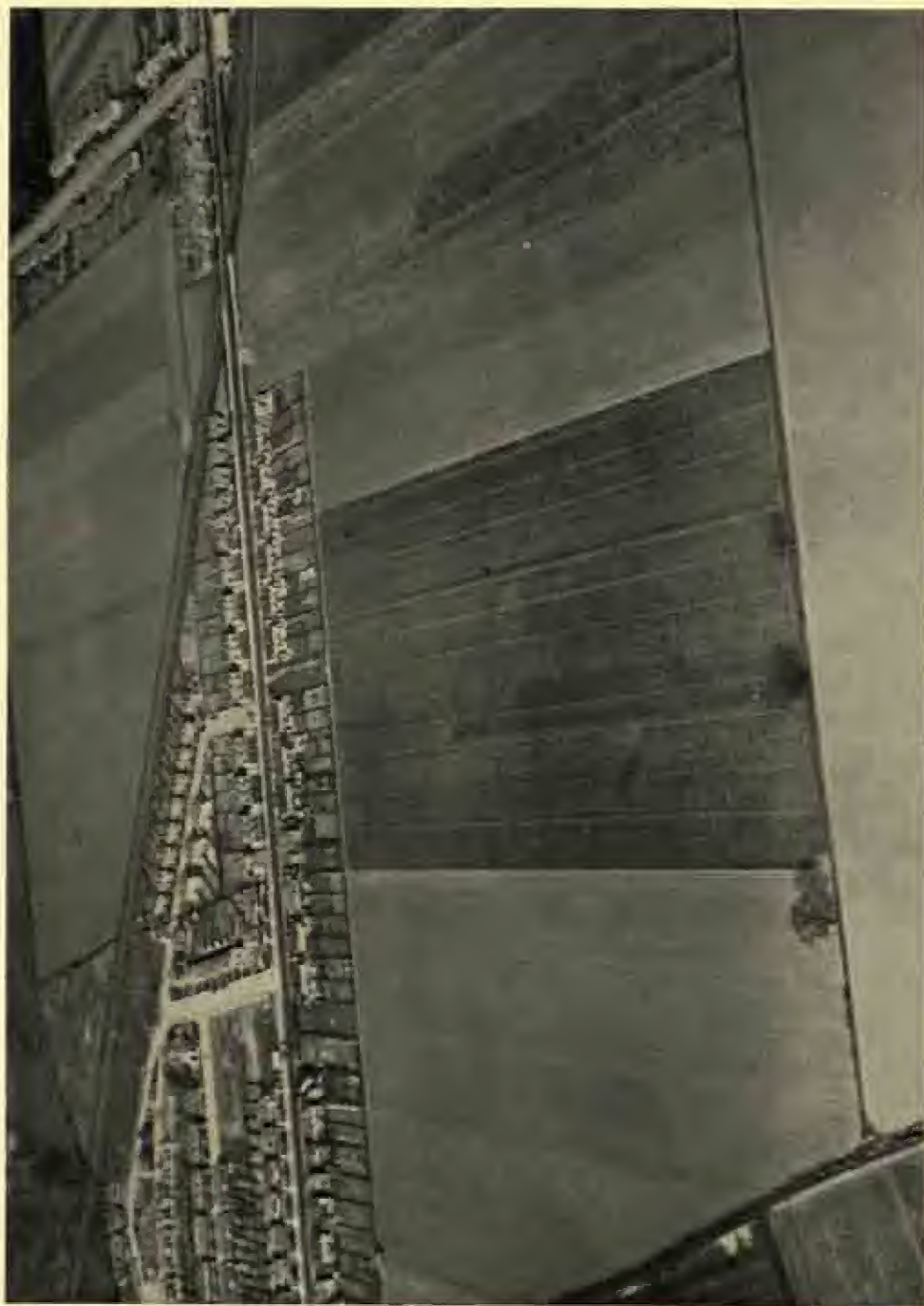
TWINLEY FARM, WHITCHURCH, HANTS. (17 NW). A new long barrow, and a round barrow. Round barrows had previously been recorded here, but the photograph makes it quite clear that what may have been mistaken for two round barrows is in reality a single long one. About 1918, an iron sword was ploughed up on one of the barrows, no doubt a secondary interment of the Saxon period.

When we recall that these discoveries (excepting plate II) represent merely a selection of those made by one man during a few flights, it is plain what a harvest is still waiting to be reaped. And what may we expect when other countries, now still virgin soil, are explored from the air ? (French papers please copy).

⁵ See ANTIQUITY, 1930, IV, 303 ff.

⁶ Perambulation of Wychewod' Forest, published in *The Eynsham Cartulary*, ed. W. H. Salter, Oxford Hist. Soc. 1908, LI, 92-4.

PLATE I



CAESAR'S CAMP ON GREENFORD COMMON, NEAR STAINES, MIDDLESEX (24 NEI)
P. George Allen, 15 April 1933. (Copyright reserved)

PLATE II



DOUBLE ENCLOSURE BESIDE THE DOVER-CANTERBURY ROAD, WOMENSWOLD, KENT (57 SW).
6 June 1932. *Crown copyright reserved*

PLATE III



ROMAN ROAD, CASTOR, NORTHANTS. (S.W.)
P. G. George Allen, 14 April 1931. Copyright reserved

PLATE IV



CIRCLES BETWEEN FOXLEY FARM AND EYNSHAM, OXON (SEE SP.)
/96, George Allen, 6 June 1933. Copyright reserved

PLATE V



CIRCLES AND CROP-MARKS AT STANTON HARDCOURT, OXON. (38 NEI).
Ph. George Allen, 6 June 1933. Copyright reserved

PLATE VI



CROSSMARKS NEAR NORTHFIELD FARM, BURNS (U SW)
PA. George Allen, 5 June 1933. Copyright reserved

The Loam-Terrains of Southeast England and their relation to its Early History

by S. W. WOOLDRIDGE and D. L. LINTON

IN his most valuable and stimulating work on *The Personality of Britain*, Dr Cyril Fox has assembled a large body of archaeological data and has presented an interpretation of the several successive distributions based upon essentially geographical considerations. This theme covers a wide range of topics which interest workers in other fields, none more than geographers. One of the geographer's main interests lies in the study of Regions, and he may well claim to have been afforded by Dr Fox a most valuable addition to his data, which enables him to push back his study of regional distinctness into earlier periods than those with which history deals. In return, he may hope to contribute something to the interpretation from his own field which embraces analysis of regional physique in all its aspects.

It is from the latter point of view that the following brief contribution is offered. It is concerned with the physique of Southeast England in its relation to the earlier stages of settlement. The authors approach the subject in its archaeological contacts with some diffidence and would wish to make clear that their aim is not to criticize but to supplement Dr Fox's interpretation so far as it concerns Southeast England. It is evident that generalization based upon the whole or the larger part of British area must apply with varying emphasis to its several parts. The primary line of division of the country recognized by Fox is the 'Exe-Tees' line of the geographer. The area lying southeast of this line certainly constitutes a major unit, when judged in respect of position and relief, but it may fairly be contended that Southeast England, *i.e.* the area included within the main chalk escarpment as far north as the Wash, possesses certain features, especially soil features, which mark it off from the rest of the English plain and which have powerfully affected its reactions in the history of settlement. Chief amongst these soil features is the existence of extensive tracts of

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loamy or 'intermediate' soils, which present optimum conditions for cultivation, but which are not explicitly recognized by Fox and other workers who have dealt with the region.

We may briefly restate Fox's main thesis in respect of population and settlement, as a basis of discussion. He draws a fundamental distinction between the porous soils derived from chalk, sand and gravel and the heavy clay soils. In this way he is led to recognize 'areas of primary settlement' on soils of the first type, and 'areas of secondary settlement' on the heavy clays. Using the map showing massed Bronze Age finds as an index of population for that date, he calls attention to the importance of the upland chalk and limestone areas and suggests that it was the *extent* of the areas of porous soils which determined their selection for occupation. He comments further upon the mass of finds along the Thames valley, as affording an instance of an area of a different kind in which the relatively small extent of porous soils was probably compensated for by the attractions of transport, trade and fishing. He also notes the local concentrations of evidence near what were in essence bridge-port sites, where medieval towns subsequently sprang up.

Fox further comments on the fact that, though in the Beaker Period of the early Bronze Age the areas of porous soils were naturally far from being completely taken up, the expansion and increase of population during the ensuing thousand years still left considerable tracts of such porous soils unoccupied. In explanation he suggests that before the expansion was complete, increasing skill in agricultural methods permitted the beginning of exploitation of the clay lands, the areas of secondary settlement, and he regards such secondary settlement as conditional upon, not only a higher standard of agriculture, but of civilization as a whole, in periods of greater political security. Chief amongst such periods were those of the Roman occupation and the later phase of the Anglo-Saxon expansion. It is to the second period that he would attribute the main phase of attack on the forest lands, regarding the smaller beginnings evidenced in Iron Age and Roman-British times as in some sense 'false starts' in a general process. He notes that the existence of the pre-Roman Belgic dynasty was a not unimportant phase in the process which led to a 'shift in the economic centre of Britain from the chalk plateaux—the Salisbury Plain region—to the richer lowlands of East Anglia'. In spite of this change it is pointed out that London had not become in any sense a regional focus during Iron Age or earlier times—but came into being only in the

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Roman phase, when penetration of the surrounding woodlands first became a really practicable possibility. Dr Fox suggests that the general movement to the areas of secondary settlement is what is really implied in the oft-used term 'valley-ward' movement which was a change in mode of exploitation rather than in habitation—a move from the poorer to the richer soils.

With most points in the general thesis thus elaborated by Fox, the authors are in cordial agreement. The main ground of difference may be summarized in the suggestion that it is not sufficient to divide the soils of the region into two classes, essentially permeable and impermeable. It is, of course, evident that there are many local variations which cannot in any case figure in a general survey; that this is the case Fox clearly states. Our point, however, is that a third main group of soils exists, intermediate between the extreme classes. The significance of these loamy or intermediate soils in relation to settlement and agriculture in all ages cannot be too strongly insisted on. Their characters are as definite and as worthy of separate recognition as those of the chalk, sand and clay soils treated by Dr Fox. By styling them 'intermediate' we do not simply imply that they are gradational, comprising in various degrees the characters of the extremes between which they fall. That to some extent they partake of this nature is not to be denied, but a truer view is that which regards them as a natural soil group, giving rise to highly distinctive and clearly bounded regions, which figure among the more important settlement areas of the country from Bronze Age times onward and which remain clearly recognizable in the present-day 'cultural landscape'.

The rather general failure to recognize the importance of this soil-type in Britain is attributable in part to confusion and accidents in geological nomenclature and to the reluctance of British geologists to use the term *loess* for what are undoubtedly the analogues or equivalents of that well-known accumulation. The significance of the *loess* and related *limon* soils of the continent of Europe has been fully recognized by archaeologists and geographers. It may be recalled that Vidal de la Blache, in his well-known 'Carte pour servir à l'histoire de l'occupation du Sol'¹ figures the areas of *loess* and *limon* soils clearly. In the accompanying text he shows that these soils, giving optimum conditions for agriculture, have been salient features in the complex of

¹ 'Tableau de la Géographie de la France', in E. Lavisse, *Histoire de France*. (Hachette).

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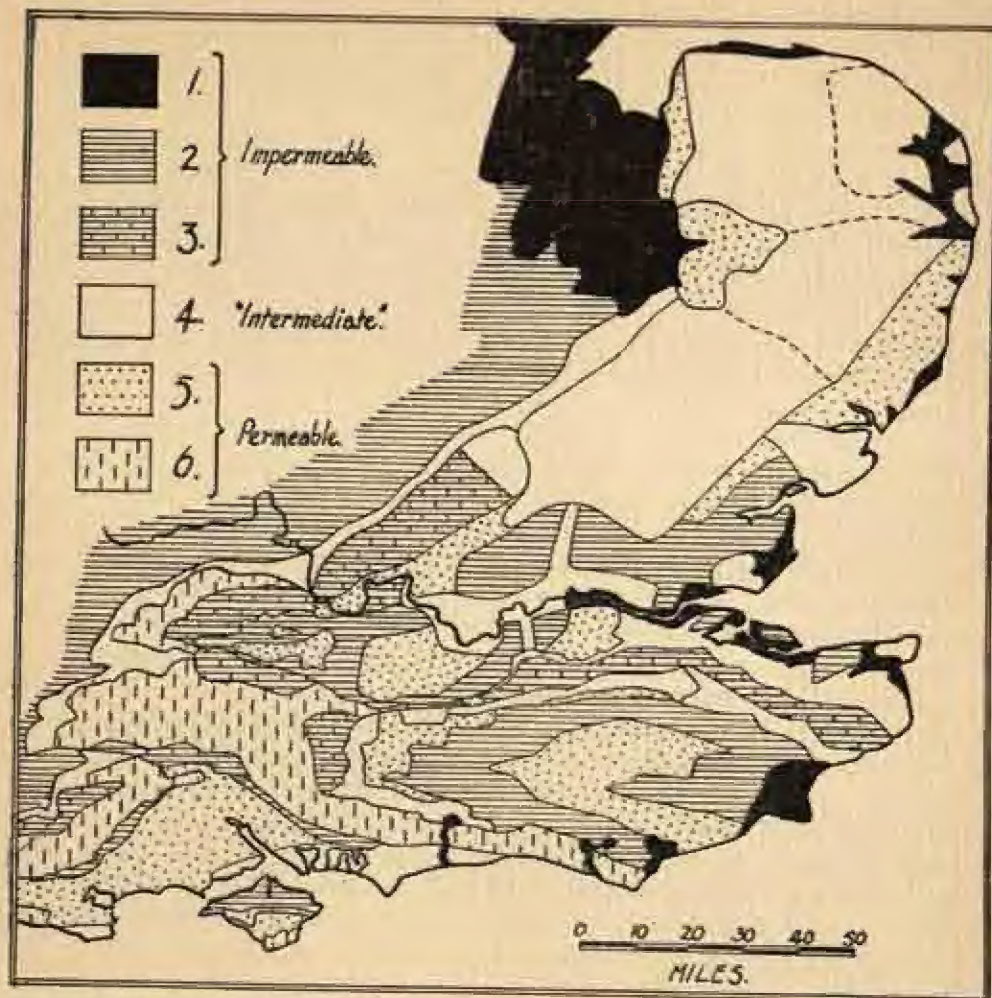
European conditions in both prehistoric and historic times. They extend in two zones across Europe, one passing from Moravia and the Danube valley to Alsace, while the other extends from northern Bohemia *via* Saxony to the Hesbaye and Picardy regions. The map suggests the extension of similar soils into southeast Britain—but the areas are vaguely placed and ill defined. Indeed, little attempt has been made to recognize the equivalents of the *limon* soils in England and we may briefly review their distribution here.

In the first place it must be noted that extensive tracts of low-level or valley brickearth exist within the area and that large parts of the valley floors and terrace surfaces are not so much gravel, as loam-covered. The close resemblance of these deposits to *loess* has often been commented upon and if this similarity be granted the question of origin need not here concern us. Among the important valley brickearth areas, we note the northern side of the Thames valley near London, especially the surface of the 'Taplow terrace'. This broad loam-covered ledge extends eastwards into Essex and also westwards from London, where it expands in southwest Middlesex into a considerable region. Reference to the newer geological maps will show how much of the area is thickly covered with brickearth; but it should be noted that extensions of the latter, inconsiderable geologically, but, none the less, important in soil control, cover much of the area necessarily mapped as gravel, both here and in other localities. The brickearth areas south of the Thames are less extensive, but the clearly bounded plateau region behind Southend is of precisely similar type and a broad tract of loam-covered terrace gravels extends up the western side of the Lea valley to the neighbourhood of Hoddesdon. Extending our examination over a wider area, we note that the seaward and larger portion of the Sussex coastal plain is a precisely similar loam-region, while similar soil conditions recur over a wide area between Norwich and the sea² and in the Tendring Hundred of north Essex. Less considerable tracts of lowland loams which are nevertheless deserving of mention, occur in the Medway valley between Maidstone and Tonbridge and in the Sittingbourne area of north Kent.

Exactly similar soil conditions recur over the outcrops of the high level brickearths which occur locally on the chalk plateaux. These are certainly of different origin from the valley brickearths and in the opinion of the authors are largely, if not entirely, true *loess*. They

² P. M. Roxby, article 'East Anglia' in *Great Britain*, 1930.

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SOIL TYPES AND INFERRED PRIMITIVE VEGETATION OF SOUTHEAST ENGLAND.

1. Alluvial soils: marsh, water meadow and alder brakes.
2. Heavy clay soils: damp oak forest.
3. Residual and drift clays of high chalk plateaux: dry oak wood, etc.
4. 'Intermediate' or loamy soils derived from the following parent materials:—
High and low level brickearths, and certain terrace gravels; Calcareous boulder clay; Thanet Marls; Lower Chalk; Upper Greensand (mainstone); Sandgate, Bargas and Hythe Beds; Original vegetation unknown, probably light woodland or scrub; arable from early times.
5. Sand and gravel soils: oak-birch-heath association.
6. Chalk soils: open chalk grassland and scrub.

The dotted lines in East Anglia delimit respectively the Norwich loam-region, and the colder, heavier boulder clays of Suffolk.

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occur in scattered patches on the North Downs and the Chiltern Hills, generally overlying the true Clay-with-Flints, but it is only at the eastern end of the Chiltern plateau, between the valleys of the Mimram and the Beane, that brickearth soils are sufficiently dominant to constitute a loam-region. There is some tendency for the loamy variant of the plateau drift to increase in importance eastwards along the North Downs also, and it is possible that the block of chalk country between the Stour valley and the sea may merit recognition as a separate soil region; but further investigation is required on this point.

So far we have been dealing with soil regions which all would recognize as analogous to the *limon* regions of the Continent, though identity has been masked by discrepant nomenclature. It remains to observe that closely similar loamy soils have been developed also upon several other important formations in Southeast England. The realization of this fact depends upon the examination of the soils themselves or of mechanical analyses of them; the geological map with its relatively simple age nomenclature of itself yields little guide.

There are four chief regions or types of region in which loamy conditions occur beyond the boundaries of the brickearth tracts. In the first place we have the soils derived from the so-called marls or 'tuffeau' of the Thanet beds of east Kent. From the coast to the Medway valley and to a smaller extent westwards to the outskirts of London, these beds yield loamy soils, the mechanical analyses of which compare closely with those of the brickearth soils. The region of optimum soil conditions thus defined is of the highest significance in the early history of the region. Soils, perhaps generally sandier but retaining the essential character and ease of working of loams, occur in the Lower Greensand region of the Weald, on the Hythe beds east of the Medway (which contrast very markedly with their more sandy equivalents to the west), on the Bargate and Loamy Folkestone Beds of the Guildford and Godalming area, and on parts of the Sandgate Beds of Sussex. Soils, again of the same type, though tending to show a higher clay fraction, are characteristic of large parts of the boulder-clay surface of East Anglia, Herts, and Essex, where, moreover, they are often associated with tracts of true brickearth. In regard to the boulder-clay soils in general certain distinctions must be made. In Suffolk, where the drift contains an appreciable element of Kimmeridge Clay, and also along the southern margins of the great sheet, in Essex and Herts, where the London Clay has been laid largely under contribution, the soils locally approximate to the true heavy

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clay type. Over the remaining and larger part of the glacial area, this is not the case. While local variations of course occur, the soils are predominantly loamy in the sense here defined, and they are comparable in many essential respects with the other loamy soils we have noted. Finally we would wish to bring into the same general group of loamy soils, those which are developed upon the lower argillaceous portion of the Chalk formation. They extend over tracts of varying width at the foot of the Chalk escarpment, and the soils of the Upper Greensand bench, where this bench forms a notable feature, as in Sussex and Hampshire, are of not dissimilar type and may be grouped with them. In all cases the soils contain much more nearly equal proportions of the mineral grades, sand, silt and clay, than do the soils derived from the purer Upper and Middle Chalks. Their ease of working is attributable in no small degree to their lime content, and to this extent they differ from the other loamy soils with which we are grouping them, but from the standpoint of human utilization their affinity is undoubtedly with this group.

Space does not permit us to discuss in detail the other soil groups of Southeast England, but we may briefly note the main types of soil or vegetation regions which occur in juxtaposition with the loam terrains and thus build the complex soil mosaic that was presented to early man. The heavy clay areas are much more restricted than is commonly supposed. They are located on the London Clay in Middlesex, Essex and Surrey, though in the last named area and further west an appreciable lightening element of sand and silt occurs in the soils. Their greatest expanse is on the Weald Clay, where again there is a considerable local admixture of sand and areas of drift-covering. The Wadhurst Clay of the Rother valley provides another tract of heavy clay land. Contrasted with these regions, we have the heathland tracts on the coarser sands and sandy gravels, notably parts of the Lower Greensand, the Bagshot Beds, the Blackheath Beds, the glacial gravels, Pliocene Craggs and the Blown Sands of the Breckland. On the Chalk areas we must distinguish the thin red and black soils of the true Downland areas from the heavily wooded and intractable areas of Clay-with-Flints. Finally we have the riverine and marine alluvium which has figured as a productive soil only late in the economic development of the region, having been largely marsh or water-covered during the earlier phases.

With the foregoing brief summary of the soil conditions of the area as a basis, we may attempt to justify the claim that it was the

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loam-regions which figured most prominently as the nuclei of settlement and penetration during the earlier stages of peopling the country. Their pre-eminence in the agriculture of today as regions favouring arable farming cannot be questioned. We need to enquire rather at what date their favourable qualities were first recognized and turned to account. From this point of view Fox's map of 'massed' Bronze Age antiquities provides interesting data. Accepting his reasonable assumption that the frequency of finds may be taken as an index of population, we note among the densely settled tracts the loam-region of the Sussex Levels, the 'Bargate' region in the neighbourhood of Guildford and Godalming, the Southend loam-plateau—a significant coastal 'landing stage' and the Norwich region. There is also the conspicuous tract of high find density which follows the Thames valley and the lower parts of the valleys of the Brent, Lea, Wandle, Medway and Stour. As we have noted, Fox advances good economic reasons for the occupation of the Thames valley floor; but to these we would desire to add the important fact that the broad loam-covered terraces offered opportunities for agriculture not essentially inferior to those of the chalk lands. Of the original vegetation cover of the brickearths we know little or nothing; but it is a reasonable surmise that they carried relatively light and easily cleared woodland diversified by some heathland country where the underlying gravels emerged. Our point, essentially, is that the Thames-side tract and its analogues in the tributary valleys were not merely regions of porous soils rendered tolerable by the attractions of trade, transit and fishing. Their extent, it is true, was less than that of the still favoured downlands, but otherwise they presented optimum conditions for clearing, cultivation and, be it added, for obtaining an adequate water-supply.

Certain other features of the Bronze Age map are worthy of note. Though the major congregations of evidence outside the Thames valley are on the chalk of Wessex and in the Breckland and contiguous tracts, among the latter we note what we may call the Icknield Zone (as far as the Hitchin Gap) which *inter alia* shares the loamy soil characters of the valley tracts. Moreover, the Essex boulder clay lands show evidence of considerable occupation. The most notable 'negative' areas, where evidence is absent or scanty, are the larger part of the Chiltern plateau, the London Clay areas of Middlesex, Herts, and Essex, the sandy Bagshot plateau, the New Forest, the Weald Clay terrain west of the Arun, and the larger part of the Weald of Kent. These facts appear to indicate that the sandy areas—the

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areas of porous soils *par excellence*, were not sought as such. Some of the Wealden heathlands were, as Fox remarks, 'islanded in forest' and thus inaccessible—but not all of them were so placed. The Bagshot plateau abutted upon the Thames valley with no considerable intervening forest tract. It appears to be reasonable to claim that the truly sandy areas and especially those of upland or plateau character never attracted occupation during early times except during the curious and interesting Mesolithic phase recently studied by Clark.³ It seems to us that with certain exceptions, such as the Breckland and the coastal Suffolk heaths, which are relatively low-lying and which enjoyed exceptional advantages of access, the sandy tracts were repellent rather than attractive. If, however, Fox is right in supposing that parts of them at least remained unoccupied because of superior attractions of other areas in a new agricultural phase, then we may maintain that to a large extent it was to the loam-terrains and not to the clay lands that population moved.

We may test the significance of the loam-areas further by reference to Iron Age distributions. The distribution of Hallstatt-La Tène I-II pottery in the area does not bear decisively on the point at issue, for the finds are relatively sparsely distributed and demonstrate little more than the continued occupation of certain of the chalk lands and the importance of the Thames valley and the Icknield Zone. But with the Belgic phase, recently so thoroughly studied by Hawkes and Dunning,⁴ a number of relevant points come to light. The general distribution of pedestal-urns (excluding those of Roman date) immediately suggests the importance of (a) the Kent Lower Tertiary Zone and (b) the Essex and Herts boulder-clay lands. All the evidence combines to suggest that the earlier wave of Belgic peoples, entering by the Kentish angle, settled in great numbers on the belt of rich arable soils situated upon the brickearths and Thanet loams and on the lower portions of the chalk dip-slope where considerable relics of these formations survive and modify the character of the soil. There is no reason indeed to suppose that they were confined to this zone; penetration through the Medway Gap is clearly indicated. Nevertheless it cannot be supposed that the upper part of the chalk dip-slope with its Clay-with-Flints cover was other than densely forested and this forest formed a natural boundary to the loam region. The oft-quoted

³ *The Mesolithic Age in Britain*. (Cambridge Univ. Press, 1932).

⁴ *Archaeological Journ.*, vol. 87 (1930).

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observation of Caesar concerning the density of population and the ready availability of corn along his line of march is relevant here—and it is perhaps not too much to suggest that the line of Watling Street itself depended as much upon coincidence with a relatively narrow zone of favourable soils as on the possibility of bridge crossings.

As regards the slightly later phase of the Catuvellaunian dynasty, centred at St. Albans and afterwards at Colchester, it is clear that we are dealing with a drift land, not a clay land distribution. Hawkes and Dunning extend the limits of the Catuvellaunian territory southwards to the Thames, northwards into Northants, and on the evidence of coins, westwards to the Cherwell valley. That their 'sphere of influence' extended over such an area is not to be gainsaid on the evidence, but that the whole of this tract showed even approximately equal density of settlement is inherently improbable. The main mass of the loamy boulder clay country terminates at a line drawn from Hertford to Hitchin. The area favourable to cultivation may have extended somewhat west of this over the loam-covered eastern end of the Chiltern plateau and in any case it must have been prolonged for some distance westward along the line of the Vale of St. Albans, which was entered by the ice sheet at its northeastern end. The most westerly record of a pedestal-urn from this district is from Abbots Langley on the northern margin of the Vale. To the south of the driftland tract stretched the London Clay forest, which was but little penetrated or settled even in Roman times. The rarity of pedestal-urns of pre-Claudian date in the Thames valley near London, suggests that the pre-Roman Belgic settlement did not extend appreciably into the Thames valley in spite of the break in the forest barrier offered by the Lea valley. On the north and west of the settled driftland area lay the accidented and heavily forested tract of the Chiltern plateau, which retained in some sense its 'barrier' quality till Saxon times. It is in the light of these facts that we claim that the heart of the Belgic kingdom lay upon the boulder clay lands and that westward penetration was probably largely confined to the region of the Vale of St. Albans and the southwesterly continuation of the 'Icknield Zone' beyond Hitchin. In this connexion again, we would venture to suggest a slight modification of the attractive thesis put forward by Fox. He comments upon the shift of the economic centre of Britain at this date from Wessex to East Anglia, and instances this as a phase in the taking over of the clay lands. But as we have seen, the region in question is not a true clay land nor does it extend into East Anglia. To the north of the lighter Essex boulder-clay

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lies the heavier Kimmeridgic variant of Suffolk, a region much less tractable under axe and plough, and no doubt serving as a natural barrier against the earlier established Celtic Iceni. It was to Essex and east Herts—a true natural region of ready clearance and cultivation, naturally invested by forest,—that the economic centre moved; and the accessibility of the southern boundary of this region to the crossing place of the Thames near London has a clear bearing on the Roman initiation of the latter city. The historical significance of the Essex drift lands in Roman times is briefly discussed elsewhere,³ in collaboration with Mr D. J. Smetham, and we shall not here pursue the theme. We may recall, however, the important geographical fact that the loam-arcas settled by the Belgae in Kent and Essex respectively and inherited by the Romans, converged upon the London crossing from the coast and together constitute one of the major significant elements in the siting of London.*

To what extent the true clay lands were cleared during Roman-British times it is difficult to say. We here touch the fringes of the interesting topic recently discussed by Collingwood,⁴ Randall,⁵ and Wheeler⁶—*viz.* the general nature of the agriculture and population of Roman Britain. Collingwood has argued that the total population of this phase was small and that its distribution was of upland or 'prehistoric' type. He supposes that agriculture was still in essence primitive—not greatly in advance of subsistence farming—and that there was a general reluctance to incur the capital expenditure involved in the clearance of low-lying forested country. A number of considerations have been urged against these views—and among the most cogent is that based upon the well-attested exports of corn about A.D. 360. On the whole it appears to us that Collingwood's case for an essentially primitive agriculture is difficult to maintain, but in the discussion which

³ *Geog. Journ.* 1931, LXXVIII, 243.

* It may be noted that 'Belgic frontier' defined by Wheeler (*ANTIQUITY* 1932, VI, 133 ff) coincides remarkably closely with one of the soil-boundaries shown on the accompanying map (p. 301); to the north lies the Chiltern plateau, while to the south is the gravel and loam terrain of the Vale of St. Albans. The tract of 'pre-historic forest' shown on Wheeler's map is presumably based upon the distribution of the boulder-clay as shown on the geological map. In actual fact the boulder-clay is partly replaced by and almost completely covered by brickearth in this area, which must thus have been favourable to arable cultivation. The heavy forest land probably came on suddenly north of the 'frontier', which is a natural ecological boundary.

⁴ *ANTIQUITY*, 1929, III, 261.

⁵ *ANTIQUITY*, 1930, IV, 80.

⁶ *Ibid.* p. 91.

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his ideas evoked, the facts of distribution as shown on the Ordnance Survey map of Roman Britain, from which he started as a basis, have been rather lost sight of. It therefore seems worth recalling that whatever the productivity of agriculture during this phase, and whatever improvements were introduced by the Romans, the facts at present known do not suggest any considerable attack on the true forested clay lands. The main 'negative' areas on the Roman map are quite clearly and definitely as follows: the greater part of the Chiltern and Bagshot plateaux, the London Clay areas of Middlesex and Essex, the Central Weald and the heavier boulder clay lands lying north of Stane Street in Essex. This distribution is virtually identical with that for earlier periods and signifies an avoidance of clay country, and of tracts of sandy upland. There is little doubt in our view, however, that the farmed country was very much more productive than Collingwood supposes, for to the facts adduced by Randall we may add this salient geographical consideration—that the lands farmed by the Romans in Essex, Herts, and Kent are among the most naturally productive in the region and are still indeed notably preponderant as areas of arable farming. The soils of these regions belonged neither to the lighter nor heavier classes as commonly defined, but to the vitally important intermediate group we have sought to distinguish. Herein lies a reasonable explanation of the combination of high productivity with the general absence of areal expansion.

Into the long and obscure history of the Saxon penetration and settlement of the area we must forbear to enter here. It presents innumerable points of interest in connexion with soil geography and we hope to treat of these elsewhere. For present purposes it must suffice to note that the later part of the Saxon period appears to have witnessed the first real inroad on the clay forest lands. Such indeed is Fox's conclusion and we may urge in further support the evidence of place-names. Those believed to be of later date certainly congregate markedly on some of the clay lands, as in southern Essex.⁹ On the other hand the place-name evidence as a whole does not lend support to the idea that expansion into the woodlands was delayed altogether until after the pagan phase. Fox¹⁰ interprets Leeds' map of cemeteries as indicating that hardly any progress was made in pagan times—but Leeds himself, contrasting the narrow localization of the cemeteries in

⁹ Wooldridge and Smetham. *Geog. Journ.*, 1931, LXXVIII, 260.

¹⁰ *The Personality of Britain*, p. 71.

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East Anglia with wide distribution of Anglo-Saxon names (by no means wholly of later type)—was led to remark that 'it demonstrates how soon the inhabitants must have ceased to be influenced by this former selectiveness'¹¹. At any rate we may reasonably conclude that the surviving tracts of boulder-clay woodland—if not the clay forests farther south—were appreciably cleared in relatively early stages of the Anglo-Saxon settlement. In the general picture of Saxon times the loam-terrains figure as the regional nuclei of the several kingdoms, much as they did during the late Celtic phase, and we may note further that in this stage we witness the first considerable settlement of the loamy Lower Greensand tracts in east Kent and west Sussex, which become, as it were, secondary nuclei of the Kentish and South-Saxon kingdoms, pendent respectively upon the Lower Tertiary loam belt and the 'Sussex Levels'.

In conclusion we may remark that the theme here briefly presented is capable of, and indeed calls for, a more extended treatment which we hope to devote to it in due course. What we have termed the loam-terrains constitute an essential key to the study of the later phases in the historical geography of the area and even in the present phase of 'metropolitan' geography they remain agriculturally distinct. In the foregoing paragraphs we have sought to trace their significance in the archaeological field only and we submit that they stand out as areas of 'primary settlement' first entered upon in the Bronze Age, more extensively taken up in the Belgic phase of late Iron Age times, inherited with but little extension or areal modification by the Romans and finally consolidated and extended as regional nuclei by the Nordic invaders, prior to the settlement of the latter within the areas of the heavy clays. The treatment here attempted emphasizes the essential similarity in soil-character of regions which, judged by examination of a geological map, would appear entirely dissimilar. If the group of loamy soils is included within the major division of Fox's porous soils, the main lines of his generalizations appear to be abundantly supported by the facts. As we have indicated, the rather loose colloquial soil terminology, combined with certain imperfections in geological nomenclature, are apt to conceal the existence of the loamy-soil group, placing some of its members with the true clays, to which they bear little resemblance and linking others with the coarser sands and gravels, from which again the

¹¹ E. T. Leeds, *The Archaeology of the Anglo-Saxon Settlements*, p. 69.

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differences are radical. If independent status is given to this soil-group, the study of the progress of early settlement is considerably clarified. The very partially true connotation of the term 'valleyward movement' commented upon by Fox and by Wheeler¹² is also rendered clearer. In Southeast England it was to plains and low plateaux of a definite soil constitution as well as to valley floors that Early Man progressively moved.

¹² ANTIQUITY, 1930, IV, 92.

Ancient Mexico

by J. LESLIE MITCHELL.

ANCIENT Mexico in the popular mind remains synonymous with Montezuma, treasure, and the late Rider Haggard. Even those who have passed beyond the naïveties of this horizon-culture have seldom progressed further than Prescott, and still envisage his genteel Aztecs as the *fons et origo* of all things Mexican.

The latter view, so far as the Americanist is concerned, is roughly sixty years and three research stages out of date. By 1899 Mr W. J. Payne was thus summing up the common opinion of *his* generation of historians, who had arrived at the second stage:—'To the Toltecs, among the early peoples of the New World, the first place no less indisputably belongs than to the Greeks in the Old.'

The Aztecs had been deposed. Backgrounding his Toltecs, however, rose even then the uneasy ghosts of a people more remote in time and advanced in culture; and with these, Canute-like, Mr Payne dealt sternly:—'An opinion has even been entertained that the Maya possessed an indigenous culture, independent of, though parallel to, that of the Nahuatlaca [Toltecs], to which the latter was substantially indebted for some of its principal features. We are compelled to regard this view as erroneous'.

Nevertheless, the Mayan ghosts refused to be laid. From the point of view of antiquity, the Toltecs wilt into insignificance in the light cast upon the antique American scene from that cumbrous lamp of calendrical attainment which was the great glory of the Maya Old Empire. It is now generally accepted that such semi-civilizations as rose to being in Ancient Mexico were heritors of the culture of Central America; the Toltec is seen as no originator, but one gifted with a mere barbarian imitateness.

The irreverent might speculate that the process is unending, and prophecy that in another twenty years the Maya themselves may stand

¹ *History of the New World called America*, 1899.

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convicted as the merest *nouveaux riches*. Nor is either the irreverence or the speculation unwarranted. That apart, and as the following brief sketch of their elements will seek to show, a single origin is as little traceable in the diversity of Mexico's culture as—in the confused obscurity of their history—is a single ancestor for its tenebrous tribes.

In the 5th or 6th Christian centuries the Maya Old Empire of Central America was at its apogee.² Territorially it extended northwards almost as far as the Tehuantepec neck; culturally, its reach was undoubtedly much further. The calculiform glyphic inscriptions of its bush-embedded cities supply us with approximate datings. But in Mexico proper, beyond that Tehuantepecan isthmus, there are no such reliable aids. Cultural comparisons and the careful dissection of legend must suffice until the Aztec manuscripts open in the middle of the 13th century. And both archaic cultural remains and archaic legends lie, actually or metaphorically, in strata disrupted again and again, by this or that upheaval, to fantastic unintelligibility.

To make brief and arbitrary selection, however, the Mexico contemporaneous with the Old Empire's apogee appears still in the culture of the 'Archaic Horizon'. Dotting the curvature of the Gulf and the length and breadth of the main plateau were occasional settled sites. Maize and the aloe were cultivated around these sites—maize cultivation had already extended as far northwards as the Panuco Valley. A crude pottery was manufactured, some archaic experimentings in textiles prove the domestication of the cotton plant; and there is an almost complete absence of signs of metal-working. It was still a land of the palaeolithic nomad and hunter, the settled site the exception rather than the rule.

This 'Horizon Culture' is ascribed (a) to no definitive inventive focus, and to have evolved and progressed through some 2000 years or more; (b) to an origin completely intrusive, an alien importation from Central America, barely ante-dating the first Christian millennium.

Selectivity balks between these diametrically-opposed conclusions and turns to the 'Archaic Horizon' peoples themselves. Of these, settled or nomadic, enjoying or disregarding the archaic culture, two can be identified definitely, three or four tentatively. In the vicinity of modern Vera Cruz were the Totonacâ, whose speech some thousand years later was discovered to have Mayance affinities. Further north along the Gulf, in Huaxtlan, the Tamarind Land, were the Huastecâ,

² See *The End of the Maya Old Empire*, ANTIQUITY, September 1930.

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a people possessing close ethnical affinities with the Maya. (It is possible that all the 'autochthonous autochthones' from the Panuco Valley to Copan were once Maya or proto-Maya, though none of them originators of the Old Empire civilization). Still remoter in the north were the



Mazahuâ and Mixe, with unidentified origins and affinities. The dim folk of the central plateau and the Pacific slope are nameless. In Oaxaca the racial groupings of Zapotec and Mixtec had perhaps already differentiated. All were peoples on the verge of history, and on that verge, for the next thousand years or so, they remained.

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About the year 500, disturbing the ancient serenity of centuries, the Otomi appear to have descended on the central plateau from the mists and mountains of the north. Hunters to whom agricultural method had penetrated in the unknown land of their origin, they pushed south in search of more fertile tracts, probably warring with the ancient inhabitants and probably carrying the first seeds of organized warfare into Mexico.

In later days, when the possession of Nahuatl blood in Mexico was as important as Norman in England, these Otomi were to claim kinship with the Toltecs and Aztecs. But they 'appear by their monosyllabic language and some other peculiarities to have been isolated ethnically'³ and to have preceded all other invaders. If their placing here is correct, they were but the forerunners of a far more important migration. From the remote north, after lengthy journeyings since leaving that unidentified Huehuetlapallan—the Great Colourful Place—descended that social class, cluster of cultural excellence, or definite tribal group to which with some reason were ascribed most of the subsequent glories of Mexico; these were the Toltecs, the 'Master-Builders'.

Of the various dates ascribed to their arrival at the site of their ultimate capital, Tollan, A.D. 770 is the more probable. But they did not attain to that capital immediately on entering Mexico. Under their reputed leader, Great Hand (Huemactzin), they had journeyed down the Pacific coast for many years. Some of these journeyings had been by sea. Definitely within the borders of modern Mexico they had first halted and built Tlachicatzin—identified with a dozen partially-excavated sites, including Colima on the Pacific slopes. Mysteriously evicted from that settlement, they took to their wanderings again, apparently wheeled eastwards across the central plateau, and founded Tollantzinco. Fifty or a hundred years afterwards they penetrated northwards up into the heart of what was then Otomi territory, and in a place renowned for the basket-making qualities of its reeds (*tollin*) laid the foundations of that city that long haunted the memories of the Mexican tribes.

The Toltecs were 'men of peace', noteworthy cultivators and architects. White-robed, portly, with hair cut short to the occiput, their feet shod in henequen-fibre sandals,⁴ the elders and leaders in each settlement superintended the plantation-cultivation of maize, pulse, pepper,

³ W. J. McGee and C. Thomas, *Prehistoric North America*, 1905.

⁴ *Costumes of America*, 1780.

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cotton, and the *pulque* aloe. They used stone tools, but also 'wrought gold and silver and copper into such shapes as they pleased'³; they built at Tollan great *storeyed* buildings, temples and palaces and pyramids. 'They had necromancers, sorcerers, magicians, astronomers, poets, philosophers, and orators; they knew everything, good and bad'⁴, according to one venerable enthusiast. They worshipped at first one God—in his solar manifestation. Later came the rise of the 'young god', Tezcatlipoca, and with his advent human sacrifice. Their fame spread north and south. A divine being, Quetzalcohuatl, descended to earth, revived ancient ways of life and brought new secrets of power. It was the Golden Age of Anahuac.

Its foster-child, before the unpleasing advent of the scientific Americanist, was at least an age of golden romancings. Yet modern excavation and research, though they dim the picture's colours, do not deny the outlines. These 'men of peace' appear to have called themselves Toltecs no more than the Hellenes called themselves Greeks. They rejoiced in the designation Aculhuaqué—'Strong Men'. And the 'young god', Tezcatlipoca, was the horrendous war-deity whom they transmitted to their successors, the Aztecs. These are neither the characteristics nor the gods of a peaceful people. But it may be that the immigrants were in small numbers, subduing the native inhabitants by force of military superiority, and inaugurating thereafter a long era of peace till the pressure of fresh northwards immigrants revived war-cult and war-god.

Modern research generally designates them a Stone Age people, to be judged by Stone Age standards. But it is doubtful if the term—in America, at least, where chipped tools, polished tools, copper tools, and the so-called 'accidental bronzes' were all used indifferently in the same periods in the same areas—has any just meaning. Chalcolithic—those who employed stone when metal was not available—would appear to approximate more closely to the facts of legend and excavation.

Of their storeyed buildings, palaces and temples, no trace now exists in Mexico proper, though the pyramids of Cholula and Teotihuacan still stand. In Yucatan, however, a late refugee-colony, most of the buildings in the city of Chichen-itza are remarkable witnesses

³ *Histoire Générale des choses de la Nouvelle Espagne*, 1880. (French re-edition of the history of Bernardino de Sahagun).

⁴ C.-É. Brasseur de Bourbourg. *Histoire des nations civilisées du Mexique et de l'Amérique Centrale durant les siècles antérieurs à Christophe Colomb*, 1857-1859.

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to the reality of the Toltec builder-genius. They brought new things into New World architecture—the pilaster, the atlantean support, façade decoration in the form of intricate formal mask panels, the ball court. It was an art as dull in imaginative concept as it was energetic in achievement—the art, one would judge, of an uninventive people.

So with their sculpture—either of the human figure, in low relief, at Chichen-itza, or the giant sculptured mosaics that still obtrude from the pyramidal bases at Teotihuacan. Technique is as adequate as artistic flair is absent. In pottery, among a mass of unremarkable household utensils, they made beautiful vases, slip-painted in the primary colours.

'Necromancers, sorcerers, and magicians' they may well have had; and no doubt even the difficulties of an agglutinative language were no bar to oratory. Of their astronomy we have no direct knowledge. It was probably as inferior to that of the Old Empire Maya as their calendar—a borrowed product—was inferior.

In the worship of a single solar-god (probably in the main an agricultural deity) whose subsequent lustre was somewhat dimmed by the rise of a war-god, the Toltecs appear to pay remarkable tribute to the theories of Dr W. J. Perry,⁷ and hardly to merit the severe and unconsciously humorous strictures of a former generation of pseudo-sayants—that 'animalism seems to circumscribe their whole religious bent'.⁸

To summarize briefly the views of four modern schools of historians, the entire Toltec semi-civilization was (a) brought by the Toltecs from their original home, Huehuetlapallan; (b) evolved in the districts surrounding Tollan; (c) derived from the Maya Old Empire in Central America; (d) imported from across the Pacific.

The first school lacks a definite geographical focus. If in British Columbia or in California the Great Colourful Place is to be identified—as it may well be in either—the lack in these regions of the most obtrusive elements in Toltec culture is remarkable. If in the Mound-Builder region of the Mississippi, then the Toltecs, fully equipped as to culture, achieved the remarkable feat of deserting their remote home and migrating into Mexico before the radiations from their own Mexican cultural adventure had made possible the growth and existence of the

⁷ W. J. Perry, *The Origin of Magic and Religion*, 1923.

⁸ Thomas J. Diven, *Aztecs and Mayas*, 1909.

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Mound-Builder communities. One may suspect that even the Abbé Brasseur's necromancers would have balked at this miracle.

The second theory, championed by those who see all civilizations as separate ferments in hermetically-sealed containers, has now few supporters. Least of all had it support among the Toltecs themselves, who consistently referred their advancement to the work of alien culture-bringers.

The third hypothesis is based on the greater antiquity of the Maya Old Empire, and the indisputable certainty that the Toltecs absorbed various cultural elements from the great Central Americans. The fourth, championed in various fashions and in various ages by the Spanish conquerors, Humboldt, and the followers of Dr Elliot Smith, deduces a direct cultural relationship between Eastern Asia and Mexico.*

Although the mass of conservative opinion undoubtedly gravitates to support of the third school, that opinion has all too frequently been formed from the study of exclusively American subjects. M. Gagnon's remark :—' Je dirai même que l'archéologue que fait de l'Amérique l'unique champs de ses études, pourra certainement nous donner des détails du plus haut intérêt sur les civilisations indigènes, mais il n'aura pas qualité pour nous en dire l'origine s'il ne peut en même temps comparer ces civilisations avec les civilisations orientales '† is more applicable than ever to any consideration of the Toltecs' schooling, if not their ancestry.

To test the claims to paternity of either Mayan or Asiatic it is necessary to move southward a moment from the scene of the Toltecs' hasting activity in rearing Tollan.

Before any overwhelmingly effective drift of culture from the collapse of the Mayan Old Empire could have ebbed up into Mexico it must, presuming a land route, have passed through the Isthmus of Tehuantepec. Inside the Mexican region, a little north of the Isthmus, lie the ruins of Mitla and Monte Alban. Their construction is consistently ascribed to the tribes in occupation of the region at the time of the coming of the Spaniards. These were the Zapotecs and Mixtecs. No certain datings can be applied to these two test-sites. And this is important. For if, in the view of the Mayoid school, their remote antiquity is assumed, then they were built by the immigrant

* See maps in G. Elliot Smith's *Human History*, 1930.

† Alphonse Gagnon, *L'Amérique Pré-Colombienne*, 1908.

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wash of culture from the Central American débâcle ; if dated late in pre-Columbian history, it was a reflex flow of culture from the Mayan-inspired Toltecs.

Both sites are show places of the ancient American scene. Monte Alban, in the process of excavation, appears to be yielding such stores of 'treasure' as are likely to retrieve the reputation of Mexico in the eyes of the romantic novelist ; Mitla has long been as fruitful of popular theorizing and even more barren of satisfactory evidence than Tiawanako of the Peruvian Andes. Amid heaps of rubble and great vegetal mounds stand its much-discussed 'palace-complex'—quadrangular buildings, the walls reared with extraordinary skill and symmetry. For ornamentation these walls are severely patterned in grecques and the like variations on world-known geometric elements. World-known—but not elsewhere in America north of Panama. 'The sculptural decoration of the buildings at Mitla is unique in Central America'.¹¹

Humboldt, in whose day Mitla appears in a much better state of repair, noted the palace's 'arabesques', its caryatids, its general appearance of having 'striking analogies to Lower Italy'.¹² But he added, with his usual caution, that analogies of this kind are very limited proof of the ancient communication of nations. Charnay spoke of it as 'a bewildering maze of courts and buildings, with facings ornamented with mosaics in relief, of the purest design ; but under its projections are found traces of paintings, wholly primitive in style, in which the right line is not even respected'.¹³

Charnay's abominable painters were undoubtedly Toltecs, and Toltec art therefore a later superimposition. And there is no trace of Mayan datings ; no characteristic Mayan sculptures (the 'grecque' is as un-Mayan as it well might be) ; the palace columns are quite definitely columns, not carved wall-section roof-supports as in the Maya area.

The claim that Mitla stands as the 'halfway house' between Mayan and Toltec art is therefore proved to have little foundation. Other origins must be sought for the basic elements of Toltec culture, as they must be sought for Zapotecan.

¹¹ T. A. Joyce, *Maya and Mexican Art*, 1927.

¹² Alexander von Humboldt, *Vues des Cordillères et monuments des peuples indigènes de l'Amérique*, 1810.

¹³ Désiré Charnay, *Les Anciennes Villes du Nouveau Monde*, 1885.

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The question returns to the battle-fields of an earlier controversy—'local development' as against extra-American inheritance. As has been stated, the only survivals of Toltec architecture in Mexico proper are pyramidal. Now, Americanists have insisted again and again, and with justice, that the designation 'pyramid', associated in the popular mind with the monuments of the Nile and Giza, is in this connexion misleading. To quote Mr Joyce (*op. cit.*), 'the Egyptian pyramid was itself *the* building. The American pyramid was an accessory—a platform on which to erect a building or an altar'. Moreover, it is insisted, the American pyramid, built in terraces, had but faint resemblance even in outline with the Nilotic monuments, and was never chambered, but a solid structure.

Humboldt records, however, that in cutting the road from Pueblo to Mexico a large portion of the Cholula pyramid was cut through and detached. A square chamber was laid bare, built of stone slabs and sustained by beams of cypress. Two skeletons reposed there, some basalt statuettes, and a number of glazed pieces of pottery. To this heterodox conduct on the part of the Cholula pyramid-builders may be added the testimony that, just as the Toltec pyramids have little outward resemblance to the Egyptian, their prototypes had certainly an antique existence outside America. Layard remarks:—'It is highly probable one uniform system of building was adopted in the East for sacred purposes, and that these ascending and receding platforms formed the general type of the Chaldean and Assyrian [pyramid] temples'.¹⁴

Toltec and Zapotec, in their different areas, were assiduous beach-combers of a great flotsam and jetsam of cultural custom—Egyptian pyramid-burial, Babylonian pyramid-form, geometric decoration, mask panel decoration, and what not—which washed against the Pacific shores at different times. Or the apparent resemblances can be ascribed to the 'narrow and limited bournes within which the human mind and the human hand can function'.¹⁵ To the present writer the 'autochthonists' appear to ascribe to the human mind a narrowness and an assiduous inventive silliness entirely incompatible one with the other.

Intimately connected with the question of local development or alien importation is the personality of the Toltecan Quetzalcohuatl. In a paper as brief as this, it is impossible to attempt the pursuit, each

¹⁴ *Discoveries among the Ruins of Nineveh and Babylon*, 1865.

¹⁵ P. A. Means, *Ancient Civilizations of the Andes*, 1931.

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to its lair, of the innumerable theories evoked by the Quetzalcohuatl or Quetzalcohuatls. As indicated elsewhere¹⁶ it is probable that there were at least three: (a) the sun-god, in one of his aspects; (b) the missionary-reformer-zealot who arrived in Toltec territory in the 9th or 10th century, laboured, died or departed, and was deified and identified with the sun-god; and (c) the very human Topiltzin Axcitl, who, at the fall of Tollan, led the dispersed Toltec tribes southward and invaded Yucatan. In recent times Mr Lewis Spence¹⁷ and others¹⁸ have indicated the main lines of evidence for identifying Quetzalcohuatl ' (b) ' with either the Buddha himself or some lost Buddhist missionary.

However enhanced by natural development from within or unnatural interference from without, Toltec culture appears to have reached its apogee about the end of the 9th century. Thenceforth it speedily declined. The Toltec city-states were threatened from the north with a constant threat: the tribes of the Chichemacâ.

Finally, in 980, these Chichemacâ, skin-clad nomadic Red Indians from North America, fell upon Tollan, captured it, killed the ' king ' of the great Toltec capital, and drove out the greater part of the inhabitants. Cholula and Teotihuacan appear to have been only partially abandoned, for around these centres small groups of Toltec ' guilds ', sheltering under fear or respect of their ancient name, remained as so many quaking islands of civilization amid the hungry seas of Chichemacan barbarism.

There ensued some three hundred years of Amerindian history comparable to that which descended on the lands of the Mediterranean with the fall of Rome. New settlements and groupings gradually came into being. The pre-Toltec Otomi emerged to some prominence. The Chichemacâ disappeared from the scene, or, more probably, resolved into that congerie of barbarian tribes which began to settle in largest numbers round the valley lakes in the centre of the Mexican plateau.

This site had been neglected by the Toltecs, according to the ancient chroniclers, as unfit for human habitation. Their savage conquerors were less liable to aesthetic deterrents. The narrow valley, a broken oval about 60 miles long by 30 broad, was separated from the rest of the plateau by an irregular girdle of mountains. These

¹⁶ ANTIQUITY, December 1930.

¹⁷ ' Antiquity of Man in America ', *Quarterly Review*, 1923.

¹⁸ J. Leslie Mitchell, ' The Buddha of America ', *Cornhill Magazine*, 1932.

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mountains were crossed by easy passes in several directions ; nevertheless, they definitely shut off the outer world. Large portions of the lake-shore were marshy, but here and there were considerable tracts of alluvial soil. The main inducement for settlers was the fact that the Tezcuco lake secreted a white saline deposit : *tequixquilt*, used as a condiment and game preservative. This could be exported for cotton and the like from the outside world. The barbarians poured into the valley, and, abandoning the rest of the plateau, Mexican history followed at their heels.

Amid a welter of names, tribal and heroic, some dozen lacustrine settlements, built of adobes or stone, had presently come to being. Crumbs of culture were absorbed from Otomi settled on Lake Tezcuco, more than crumbs from a stray migration of uprooted Toltecs which drifted into the valley and founded the pueblo of Colhuacan. Autochthonous aliens eliminated or incorporated, two main rival groupings dominated the valley—that of the Tecpanec Confederacy and that which centred round Tezcuco.

Then it was that a fresh tribe—almost, it would seem a pariah tribe—crossed the mountains and settled amid the marshes. This was the Aztecâ or Crane People, one of the most remarkable peoples in American history. Skin-clad, like the earlier Chichemacâ, the codices compiled by their artist-priests in the days of their subsequent dominance depict them in stage after stage of an heroic march, subduing cotton-clad enemies, wielders of the obsidian-edged club, with showers of arrows from majestic bows.¹⁹ But there survived a less heroic and more probable account of their advent in the valley. Outlaws and pariahs, they were at first raided and despoiled by their neighbours ; in 1314 definitely enslaved by the nearby Tecpanecs. But history, in its three hundred years of residence in the valley, had wearied of both Tecpanec and Tezcucan and in the light of the Aztecs' ferocity and energy, displayed even in enslavement, marked them for its own.

Early in the 15th century the Tezcucan paramount chief, Ixtlilxochitl, died. The Tecpanecs under Maxtla promptly invaded Tezcuco, driving into exile the heir-apparent, Nezahualcoyotl. It was the moment of the Aztecs. Allied with the exiled Tezcucan, they met and defeated Maxtla's legions, and ended the Tecpanec confederacy.

¹⁹ *The Codex Mendoza*, Bodleian Library, Oxford.

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In its place was established a fresh dominance—the league of Aztec Tenochtitlan, Tezcuco, and dim and negligible Tlacopan.

From the first Tenochtitlan was the leading member. Tlacopan is hardly heard of again. Under its restored Nezahualcoyotl, the David of Mexico, Tezcuco knew a brief Indian Summer of prosperity. Both as poet and statesman Nezahualcoyotl ranks as the most remarkable Amerindian in history. His religious utterances, indeed, suggest a recrudescence of the Quetzalcohuatl worship in its original Toltec purity—or the incursion into Mexico of fresh teachings from that mysterious and much-denied Outside which was at the moment supplying it with the game *patolli*, with an unevolved skill in copper-working, with a first acquaintance with silver. Even so, as a mere inheritor of alien sentiments and ideas the Hungry Coyote may be said to have shed the last bright light of Mexican genius.

For there was little of genius in the rule of the ever-ascendant Aztec. Under Izcohuatl Tenochtitlan consolidated its power in the valley; under his nephew, the first Moctezhuoma, it extended its conquests far into the rest of Mexico, reaching at last in direct lines of tributary villages on one side to the Pacific, on the other to the Gulf at Vera Cruz. These conquests in no sense constituted or resulted in an empire, far less a kingdom. Tenochtitlan was merely a focal maw into which tribute streamed unendingly, wrung from unwilling tribes by the Aztec harpists and their warriors. Bestriding the lakes, the Aztec capital rose into such city as dimmed the glories of even legendary Tollan. Bernal Diaz²⁰ was to stand astounded at sight of its floating gardens, its stone-built causeways, its palaces—'how well built they were, of beautiful stonework and cedar woods and the woods of other fair-scented trees; with great rooms and courts, wonderful to behold, covered with awnings of cotton cloth.'

It was the final efflorescence of Mexican art and culture, their elements drawn from so many sources. The actual Aztec contribution appears to have been negligible. Their craftsmen were sedulous imitators of the work of Otomi, Toltec, Tezcucan. Their sculptures have a hard, bright, flickering-eyed unease; a floriferation of stale, ferocious symbolism rises gaudily from the pages of even their finest pictograph codex²¹. The human skull,—represented in rock-crystal, actual specimens delicately mosaiced, or portrayed unendingly

²⁰ Bernal Diaz del Castillo, *La Conquista de Nueva Espana*.

²¹ *The Codex Féjerváry-Mayer*, Liverpool Museum.

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on parchment and pottery—obsessed their artists. Their calendar was an uninspired variant of the debased Mayan calendar prevalent in the America of their times.

No student of the elements of Mexican culture can long evade the conclusion that many of its final manifestations were aberrant from the norm of human sanity. Imitative, uncreative, size and quantity were Aztec passions. In their hands the old agricultural religion became a thing of terror. From being a seasonal rite, human sacrifice became a daily one. Thousands of victims, captives and slaves, were slaughtered yearly in Tenochtitlan and their dismembered bodies cooked and devoured at ceremonial cannibal banquets. By the time of the arrival of the Spaniards the taste for human flesh, at least among the man-eating ruling classes, had sharpened to such pitch that the excuse of religious necessity was almost completely dispensed with, and slaves, kept in cages, were fattened on maize for the table. This state of affairs—long disregarded or escaping the notice of the more genteel commentator of other days—might in the course of a few centuries have produced biological and cultural consequences that would have substantially enlarged the scope of this sketch.

History, however, had wearied quickly of the Aztecs also. Within fifty years of the death of Nezahualcoyotl, who sang how 'the things of yesterday are no more today, and the things of today shall cease, perhaps, on the morrow' Cortes was riding his charger across the smouldering ruins of Tenochtitlan.

A Greek Settlement in Thrace

by STANLEY CASSON

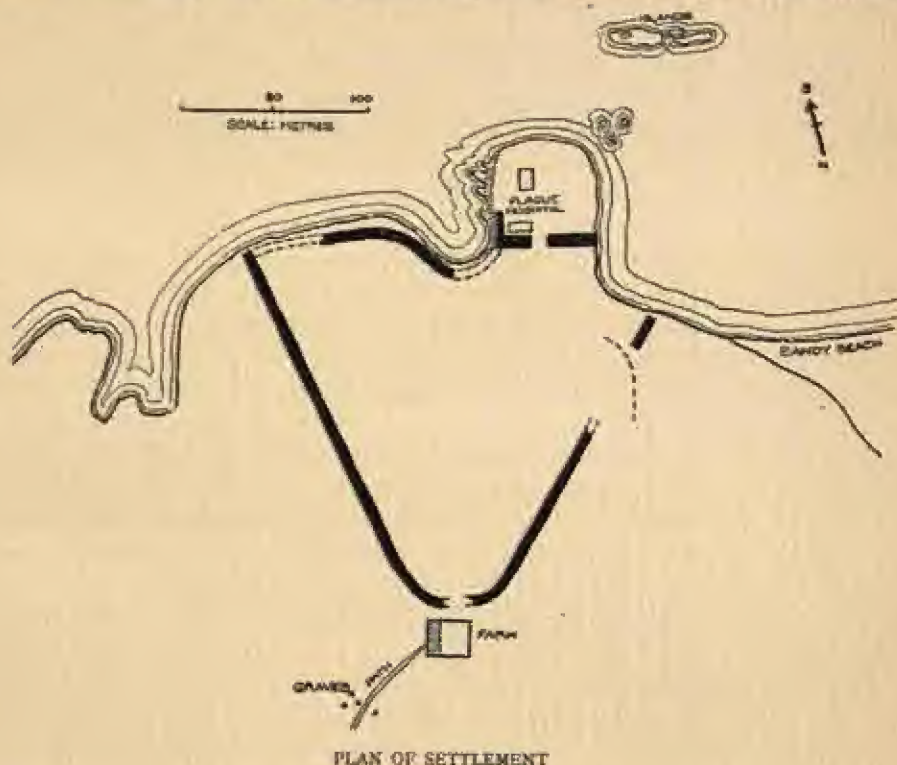
IN 1930, during the course of a survey of the coastal region of Eastern Macedonia and its immediate hinterland, I was able to make detailed observations upon a small site which I had previously visited in 1925.¹ Since my first visit the site has been seriously damaged and it has become a matter of some urgency to publish all available material concerning it before the site as a whole has been completely destroyed. Unfortunately the full control of ancient sites in Greece is not so effective in the remoter Macedonian provinces as in Old Greece, and much damage is done to them by the large increase of inhabited areas made necessary by the vast influx of refugees from Thrace and Anatolia in 1922.

The site here discussed is that of an exceedingly small city. It has an importance far beyond its size in that it contains in a microcosm, as it were, all the essential elements of a Greek city-state without being in itself more than a mere diminutive settlement founded, like the Samothracian *τεῖχον*, for the purposes of trade with the barbarous hinterland, and, in this case, for the particular purpose of tapping the gold-bearing regions of Pangaeum. This little city perhaps served the same purpose as did St. Michael's Mount in Cornwall as an intermediary between alien shippers and local miners, though there is here the difference that the shippers themselves settled and fortified the place of barter. Though known to local antiquaries, it has not previously been noticed by any other traveller in Macedonia. It lies some three kilometres due west of Kavalla, on a miniature promontory, which forms the western arm of the wide Bay of Kavalla itself, and the settlement on the promontory directly faced the Hellenic city that once stood on the site of Turkish Kavalla, that is to say of the older part of the town.

¹ *Macedonia, Thrace and Illyria* (1926), p. 92, n. 5.

A GREEK SETTLEMENT IN THRACE

The settlement is situated near a *chiftlik* known as Kalamitsa which consists of a small farm and domain. I find that some of the residents of the *chiftlik* call the place Kalamon. One local antiquary² believes that the *chiftlik* is on a Byzantine site called Kalamou after the Παναγία τῆς Καλαμουῦ, and thinks that the inhabitants later migrated to Xanthi, a little further east, where they founded the monastery Τῆς Καλαμιωτίσσης. However this may be, the Hellenic site is some little distance from the



PLAN OF SETTLEMENT

chiftlik, and has never been encroached upon by agricultural land of any kind. It remains, or at least remained until 1925, an ancient site unbuilt on after the Greek period, untilled, and undisturbed except at one place, which will be referred to later.

When I visited the site in 1930 I found that the main cross-wall (see plan) across the narrow point of the promontory had been almost

² Κ. Σκάλτσος : Ἱστορία τῆς Καβάλλας, 1930, p. 13.

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completely destroyed during the building of a plague hospital. Fortunately I still had my notes made on the previous visit and so am able to describe the site in its undamaged condition. The only other serious damage is at the point where the eastern long wall reached the sea. Here in 1916 the Bulgarian military authorities constructed a concrete fort of great strength for coast defence against the Allied fleet, and in the process completely removed a section of the main town wall. Notwithstanding, only a fraction of the main system has vanished and the recent destruction near the plague hospital concerns only a few yards—though the best preserved portion—of the whole wall.

The plan of this settlement is roughly that of an isosceles triangle. The western wall starts from the west side of the subsidiary promontory and runs at an angle towards the highest part of the cliff. Here it meets the eastern wall, which descends again to the sea. Between the ends of the two walls runs the base of the triangle as a sea-wall, cutting straight across the subsidiary promontory. I suspect that the apex of the triangle ended in a strong gate-tower. But, unfortunately, no trace of this can be found and in all probability it was demolished during the construction, about two hundred years ago, of the Turkish farmhouse adjoining. The most remarkable fact is that there seems to have been no land-gate in the two sides. Probably there was one at the apex. But there still survives a splendid gateway in the stretch of wall that cuts off the subsidiary promontory. It was this gateway and the wall to the west of it that I saw so well preserved in 1925, standing some nine courses high, with one very large gatepost still in place. Now almost the whole of the west side has disappeared.

In plan this miniature city is a replica both of the Philippi of Greek times and of Hellenic Thasos. For the walls of Philippi³ run up the hillside and meet in a tower at the top. They are of almost equal length, and the base of the triangle runs along the level ground that today lies between the Drama-Kavalla road and the rocky foot of the hill. The surviving Hellenic walls of Philippi are built without mortar, of squared and well-masoned limestone blocks in the Greek style of the 4th century. Possibly this triangular plan was characteristic of Thracian cities. The Kalamitsa walls, however, are not ashlar and but little masoned, but are of granite lightly trimmed and sometimes of natural blocks. For the granite beds hereabouts

³ Heuzey, *Mission archéologique de Macédoine*, plan A.

A GREEK SETTLEMENT IN THRACE

can be easily quarried into good lengths, without much difficulty : the beds are laid horizontally and the stone is easily detached.

The width of the walls at Kalamitsa is a uniform 2.10 metres. The height naturally varies, but the sea-wall at a point about the centre of the base of the triangle is 2 metres in height, with four good courses. Here there is a long stretch of 52 metres in good preservation. The highest part intact is the flanking wall in the diminutive cove at the east side of the gate on the subsidiary promontory. Here there are nine courses.

The total length of the east wall is 215 metres from the sea to the junction with the west wall. The west wall itself is slightly shorter, being some 145 metres only, so that the triangle is not strictly isosceles.

Some part of the area enclosed by these walls consists of rocky outcrops, but there is considerable depth of earth in places and the soil is good. Over the greater part of the area pottery in abundance is to be found. Many fragments of black-glaze ware can be picked up and the shapes indicated by the fragments which I examined were all those of known 5th or 4th century types. I could see no trace of Roman or Byzantine pottery of any kind and certainly no architectural remains of these later periods.

The settlement would clearly have used the fields of the neighbouring *chiftlik* for its immediate wants in crops, but, in the main, the occupants relied obviously upon the sea as their main means of external communication. The cross-wall of the subsidiary promontory and the gate through it would have enabled the residents in times of trouble to assemble on the promontory and embark in ships, with the gate closed behind them.

In ordinary times small ships could put into the two little harbours on each side of the promontory while a long stretch of sand, at least half-a-mile in length, which extends to the west, would have allowed a large number of ships to beach in shallow water, well protected on the west by a projecting cliff of rock.

A few cables away from the end of the promontory are two rocky islets, quite flat, which today support a summer café. These would have been convenient anchorages for ships calling.

The total length of the city was scarcely three hundred yards from the tip of the promontory to the apex of the walls on the summit of the cliff near the farm. But the area between the walls, judging by surface remains, seems to have been extensively occupied.

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Just north of the apex, not far from the farm, are several graves made of stone slabs of the type usual in Macedonia in the 5th century,⁴ though rougher in quality. These seem to mark a cemetery outside the walls.

Here, then, in miniature is a Greek city-state of the type most commonly met with in Greek colonial regions. Selinus, Byzantium, Megara Hyblaea, and a score of others, exhibit the same type on a larger scale. It was the type most favoured in lands where the barbarians were unreliable and dangerous, so that rapid evacuation was easy. Here is the Greek *τείχος*, the embryo of the full Greek city. It was perched on the cliff edge, as Phocylides says:

*πάλις ἐν σκοπέλλῃ κατὰ κόσμον
οἰκῶντα σμικρὴ κρέσσων Νίνου Ἀφραινούσης.*

Nor is it a coincidence that we hear of *τείχη* on many parts of the Thracian coast. We are told of the Samothracian *τείχη* near Doriskos and of Thasian settlements on the mainland that never had the full status of cities.

If a name can be given to this city, probably that of Antisara is the most probable, on the assumption that Kavalla is Neapolis⁵ (or Neopolis as its inhabitants seem to have called it). Antisara is mentioned by Stephanus⁶ as being the harbour for Daton in Thrace, and it occurs again in the Tribute Lists as a humble contributor, with Neopolis as its neighbour *παρ' Ἀντισάραν*. Neopolis and Antisara thus seem to have stared each other in the face. Today this ancient site and modern Kavalla on its long steep promontory look at each other across their wide and comfortable bay. Neopolis was probably founded by Athens after the capture of Thasos and thus would have replaced the earlier *ἐπίγειον* Antisara in importance.

Unfortunately no inscriptions have as yet been found in or near this site that could help to throw light upon its identity. It awaits excavation.

⁴ e.g. at Zeitenlik near Salonika. See *Albania*, II (1927), p. 28.

⁵ This assumption seems of necessity to follow from the discovery at Kavalla of the inscription of Apollonphanes, the *νεωκόρος* of the Neopolitan Parthenon. Heuzey, *Mission*, p. 21, no. 5.

⁶ S.v. Ἀντίσαρα.



GREEK SETTLEMENT IN THRACE
The east wall of the Hellenic city at its highest part



KALAMITSA POINT FROM THE WEST
The cross-wall over the promontory is visible to the left of the white house

Wales in the Fourteenth Century*

by H. J. RANDALL

THE publication of this map is an event of importance. It is no exaggeration to say that it marks a definite advance in the geographical study of history. There may be other historical maps of a like completeness and accuracy, but if there be, 'this deponent knoweth them not'. It is for this reason that a contribution to local history is deemed to deserve an extended notice in the pages of *ANTIQUITY*. The map is the result of nearly twenty years of research. The results of that research might have been presented to the public in the form of a bulky volume; it is an event without precedent that they should appear in the form of a map.

For the physical features of the country the half-inch Ordnance Survey map has been adopted, but of human relations nothing modern appears upon it. For many historical purposes an overprint upon the modern map is useful, but in this case, because of the wealth of detail, it would have been confusing. In a country of such varied elevation as Wales, the method of depicting the heights is one of primary importance. The method chosen is that of contouring and layering. The Ordnance Survey map gives contours at intervals of 100 feet up to a height of 1000 feet, and at intervals of 250 feet beyond. It was thought that this was a refinement more than necessary in an historical map of a diversified region. It was finally determined to use four contours only, viz., at 400, 800, 1250, and 2000 feet. The layering between these contours brings out the main features without excess of detail. Below 400 feet are the lowlands and the valleys; between 400 and 800 the foothills; between 800 and 1250 the upper limits of human habitation; above 1250 the high moorlands; and beyond 2000 the mountains.

* Historical Map of South Wales and the Border in the Fourteenth Century. [In four sheets]. With a Handbook. By William Rees, Professor of the History of Wales, University College, Cardiff. Printed at the Ordnance Survey Office, Southampton. To be obtained from the author, price from 26s to 36s, according to mounting.

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Upon this physical background has been depicted the structure of medieval Wales. For this purpose Professor Rees has devised a special symbolism. It would be tedious to describe it in detail, but it is essential to mention the main colour scheme. The results of the Anglo-Norman invasions are printed in red, for no one could choose any other colour for things English. In strict accuracy the red colour indicates the non-Welsh elements, because it includes the pre-Conquest settlements of the Norsemen, as well as the post-Conquest settlements of the Normans and their followers and the Flemings. The Welsh elements are printed in black. In such a meeting-ground of peoples as South Wales the demarcation is often difficult, and in many cases cannot be precise. Overlappings occur frequently, and then the colour chosen has been that of the predominant element. It must not be inferred that the difference of colour always indicates a difference of language. The map is a map of institutions, not a map of languages, or of races. The red and black colours indicate first and foremost the contrast of feudalism and tribalism, and only secondarily that of English and Welsh.

The third main element is the Church, the possessions of which are indicated by a blue colour. The medieval church, both secular and monastic, stood to a large extent outside the organization of the State, and it was essential that it should be coloured separately.

The great distinction of the map is that it has been compiled entirely from the records. Only a small proportion of these are in print, but there is definite record authority for everything that the map contains or omits. The disproportion between the work performed and the apparent result is so enormous as to be almost ludicrous. This is especially so in the matter of boundaries. There are definite records of many boundaries, but for the most part it has been necessary to place them by a process of trial and error. Some of the manorial surveys contain perambulations, but their distribution is erratic. Other sources provide assistance such as the parochial boundaries recorded in ancient Welsh in the Book of Llandaf. Yet when all these direct sources have been exhausted the final process of inference has often been something of this kind. Place no. 1 is recorded as belonging to manor A and place no. 2 to manor B and the actual boundary between A and B is a line somewhere between the two. The actual line is then a matter of inference and balance of probability, amounting to practical certainty in some cases and a high degree of probability in others. Some general considerations are also of assistance, *e.g.* in a plateau country

WALES IN THE FOURTEENTH CENTURY

an upland people will often adopt a river boundary, but a general system of river boundaries cannot be postulated ; the exceptions are too many and important.

If the bounds of medieval institutions, like manors and lordships, are difficult, the Welsh divisions of cantrefs and commotes, maenors and gwestfas are still more so.¹ In the feudalized districts the ancient divisions were so completely obliterated that their extent must be a matter of conjecture. On the other hand in the crown territories of West Wales and in the Welsheries of the Norman manors the native organization, covered by a thin veneer of feudalism, survived far into the Middle Ages. In all these instances, the geography of the Church is of the greatest assistance in interpreting the geography of the State. The Church is the most conservative of institutions, and its natural conservatism is strengthened by considerations of finance. Alterations of boundaries mean transfers of tithes and dues. Therefore, except for compelling reasons, they are not made. Ancient ecclesiastical boundaries tend to follow ancient civil boundaries, and have often survived the destruction of the civil unit. It would be unsafe to attempt a sweeping generalization, as that archdeaconries, rural deaneries, and parishes were coterminous with cantrefs, commotes, and maenors ; but the assistance afforded by church boundaries is always important and often decisive.

The period chosen by Dr Rees for his map is the first half of the fourteenth century. The decisive reason for the choice of this period is that sufficient records are then, for the first time, available. Other reasons combine to make the choice a happy one. It was the turning point of the Middle Ages. The great creative centuries, the twelfth and thirteenth, had passed away leaving permanent legacies to civilization. It would be false to call the age of Chaucer and of Perpendicular architecture a period of stagnation, but the fourteenth century was not creative as the twelfth and thirteenth had been. Towards its end the first streaks of the dawn of the modern period were apparent. Feudalism was disintegrating, monasticism was declining, the Black Death and the Hundred Years' War had shaken the economic system to its foundations, and Wyclif was the forerunner of the Reformers.

¹ The Welsh 'cantref' has been anglicized with the alteration of one letter as 'cantred'; 'cwmwd' with more change as 'commote.' We follow Dr Rees in respecting the frailties of his readers by using commote. The historical student must be warned against the tempting correlations of cantref with hundred, and maenor with manor.

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A most striking feature of the map is its resemblance in main outline to the map of modern Wales in spite of the immense changes. The lands of the Church have been transferred to private ownership, and the industrial revolution has swept over the great coalfield. The sparsely populated abodes of herdsmen like Glyn-Rotheni, Miscin, and Senghenydd have become the great agglomerations of people of the Rhondda, Aberdare, and Merthyr Tydfil, but their essential character has not altered. They were predominantly Welsh in the fourteenth century; they are the same today. The English settlements were below the 400 feet contour line then; they are below it now. The passing of 600 years has produced a minimum of essential change. But if it were possible to project the map of Wales back another 600 years, to the eighth century, the changes would have been immense. The first half of the fourteenth century marks the dividing line. The ages of movement had ended and the ages of stability had begun. In the eighth century everything would have been different; in the fourteenth century we can recognize the Wales we know.

The ages of movement produced results of the greatest interest to which historians in general have been curiously blind. The English-ries of Pembroke and Gower are phenomena of a most unusual character. South Pembroke, 'the Little England beyond Wales', maintains a community as purely English in speech and thought as that of Dorset, but separated from England by 50 to 70 miles of Welsheries. George Owen of Henllys, the earliest and one of the greatest of county historians, thus describes the situation in the reign of Elizabeth.²

'The said country of Pembrokeshire is usually called *Little England beyond Wales*, and that not unworthily, and therefore I think good to shew my opinion why the same was so called: Mr Camden calleth it *Anglia transwallina*, the reasons why it took that name may well be conjectured, for that the most part of the country speaketh English, and in it no use of the Welsh; The names of the people are mere English each family following the English fashion in surnames; Their buildings are English like, in Townreddes and villages and not in several and lone houses; Their diet is as the English people use, as the common food is, beef mutton pig goose lamb veal and kid which usually the poorest husbandman doth daily feed on. The names of the country

² *The Description of Pembrokeshire*. Cymmrodorion Society's edition, p. 33. The spelling of the extract has been modernized.

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places are altogether English, as *Wiston, Picton, Haroldston, Robeston, Johnston, Williamston, Norton, Weston, South Hill, South Hooke*, etc.

' So that a stranger travelling from *England* and having ridden four score miles and more in *Wales*, having heard no English, no English names of people or of places, and coming hither to Pembrokeshire where he shall find nothing but English, and seeing the rest before agreeable to England, would think that Wales were environed with England, and would imagine he had travelled through Wales and come into England again '.

An entertaining account by Mr A. G. Bradley in *Highways and Byways in South Wales*, shows the same position maintained practically without alteration at the beginning of the present century, and Dr Rees' map shows that it was just the same in the fourteenth. Everyone has read of the plantation of Ulster, but how many know aught of the plantation of Pembroke?

Even less known than the Little England beyond Wales is the Little Wales beyond England—the hundred of Archenfield or cantref of Erging in South Herefordshire. It is the triangle of country between the Wye and the Monnow and its northern boundary extends to within half a dozen miles of the stronghold of Hereford.

All trace of the Welsh language has long vanished from the district, nor have the inhabitants the slightest recollection of their remote ancestry. Yet the bulk of the place-names are still Welsh, and for the greater part of the Middle Ages it was a distinct Welshery in England. For this district we have the priceless record of Domesday, and Domesday duly records its special customs. There is a schedule of payments for killing a king's vassal or a thane's vassal. But if Welshman slew Welshman the scale of charges had no application. ' In that event the relatives of the slain meet together and plunder the slayer and his kinsmen and burn their houses until about noon on the morrow, when the dead man's body may be buried. Of this plunder the king took a third, " of all the rest they are quit " '. Most remarkable of all is the entry:—' When the army marches against the enemy they form by custom the vanguard in the advance and rearguard in the return '. The enemy were the unconquered Welsh. No passage could provide a more significant warning against the folly of attempting to use the conception of nationality in the interpretation of the Middle Ages.

The Little Wales beyond England is a more curious historical anomaly than the Little England beyond Wales. Until recently no

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reasonable explanation of its existence was forthcoming. The land was not unattractive to agricultural settlers—far from it. It was not an upland region left by the valley-loving English to the hill-loving Welsh. It was not remote, but a goodly portion of the smiling land of Hereford. The true explanation was divined by Dr Fox in the course of his survey of Offa's Dyke. It was found that over a large area of the county of Hereford the Dyke was entirely absent. It had not been levelled or destroyed, it had never been there. There were occasional short sections which protected early English settlements but these were complete in themselves. In the long intervals between these short sections there was not the slightest evidence that the Dyke had ever existed. The reason for this conspicuous change in the character of the great earthwork was found to be geological. The Dyke became intermittent or disappeared at the spot where it touched the Old Red Sandstone. For long ages past the Old Red Sandstone has nourished the most fertile soils of that rich agricultural county. In the Dark Ages the fertility of the soil enabled it to nourish an impenetrable forest of the damp oakwood type. The Dyke was absent because it was not needed. A visible frontier is useless and meaningless when there is no man to see it. An uninhabited country, whether desert or forest, is the most scientific of all frontiers.

So for centuries the wave of English invasion broke against the forest barrier of southern Herefordshire. It flowed round it to the north by the way of the Wye, and to the south by the way of the Severn estuary. Behind the forest barrier, in a little backwater under its protection, was left the Welsh community of Archenfield to form the vanguard against the 'enemy' and to provide stout bowmen for English armies.

Further west we find a similar community with a more obvious reason for its existence. The region of the Black Mountains on the borders of Hereford and Brecon stands out on Dr Rees' map like a Welsh island in an English sea. The valley or lowland character of the English settlement is nowhere displayed more clearly than in Breconshire. The main line of English penetration was based upon Hereford and proceeded up the valley of the Wye. It reached Boughrood and Llangoed, just where the river definitely becomes a mountain stream, and there stopped. In its course it had overpassed one of the governing features in the geography of Wales:—the low Talgarth gap which connects the middle Wye and the middle Usk. Through that gap it passed and up the Usk valley past Brecon to Aberyscir, at the

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very gate of the Roman fort known as The Gaer. There again, at the foot of the mountains, it ceased for a time, and turning down the Usk valley met another line of invasion proceeding up the same valley from Abergavenny, at or near Crickhowell. The result of these wide movements was to throw a girdle of lowland settlements round the mass of the Black Mountains. The Black Mountains were left, and still remain, as a region of hill farms Welsh in sentiment and outlook, and for a long time in language.

However the details of Welsh history are not likely to be of extensive interest, and it must suffice to indicate very briefly a few of the numerous features that the map portrays.

The roads are indicated as far as possible, but a great amount of intensive study remains to be done by local antiquaries before the ancient ways can be restored with completeness. River boundaries and ridgeway routes are characteristic of an upland people; but by the fourteenth century the valleys had been mastered and new routes created without superseding the more ancient system. A ridgeway survey of Wales has still to be completed, but the map shows all the medieval tracks for which there is any reasonable historical evidence. The period was before the building of the main stone bridges, for which the great period in Wales as in England was the fifteenth century. The sites of the ancient fairs are all related to the old trackways. For this reason many of them are ludicrously out of focus in relation to modern communications.

The physical changes, though not great in the aggregate, are more numerous than might have been expected in a mountain country. As Dr Rees remarks :—

'Coast erosion, if not actual sinking, took place on a considerable scale, especially from about the fourteenth to the sixteenth century. Little Caldey Island was severed from the mainland only in the sixteenth century. During these centuries, too, the sea made great inroads along the estuaries of the Towy, the Gwendraeth, and the Llwchwr, destroying the village of Halkinchurch, submerging the forest of Pencoed and Penryn, flooding the marshlands and altering the contour of the coast in the neighbourhood of Kidwelly, Llanelly, Briton Ferry, and Aberavon'.

The sand dunes extended their area considerably during the same period. There does not seem to be any definite evidence for the great sand storm described by Blackmore in *The Maid of Sker*, but the records

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of Margam Abbey, and an Act of Philip and Mary conferring extended powers upon commissioners of sewers, are evidence of a great extension of the blown sand upon the Glamorgan coast between Aberafan and the mouth of the Ogmore. The medieval borough and castle of Kenfig was completely sanded over at this time.³

The boroughs of Wales are a feature apt to be extremely misleading to a student of history familiar with the long struggle for municipal 'liberty' (which meant exclusive privilege) in Western Europe generally. We have the authority of that superb journalist, Giraldus Cambrensis, for the statement that the Welsh people took unkindly to towns. Urban life and organized trade are entirely alien to the life and outlook of a tribal society. The Welsh boroughs were not Welsh. They were centres of English influence, founded and maintained as such until the changes in conditions rendered their exclusiveness unnecessary. In all South Wales two boroughs only were of Welsh foundation:—Lampeter in Cardigan and Aberafan in Glamorgan. Even of these two Aberafan was something of an anomaly because the lord of Afan held his lordship directly under the marcher lord of Glamorgan.

The details of the Welsh administrative and social system cannot be set forth intelligibly in a mere summary. It must suffice to say that they survived in the Welsheries and the counties until the period of the Tudor reforms, and some lingered on as copyhold customs until the passing of the Law of Property Act in 1925. In the fourteenth century they present a picture of tribalism slowly disintegrating.

Such, in brief outline, is the contents of this most remarkable map. The subject may be primarily of local interest, but in its presentation of the results of years of research it is a pioneer work of modern historical geography, and as an example of method is of interest far beyond the narrow bounds of Wales. As Professor Rees remarks, it enables 'the reader to see, not a medley of castles, towns and villages, but an ordered system of political and social groupings. Beneath the complexity of the post-Conquest conditions, it is not difficult to trace the framework of the old order, for Wales of post-Conquest days bears strongly the imprint of the parent stock. It is this factor of continuity in social and legal arrangements which provides the stable element in all society and the importance of this in the study of local history cannot be over emphasised'.

³ A most important study on 'The Problem of the Sand Dune areas on the South Wales Coast', by Mr Leonard S. Higgins, is published in *Arch. Camb.*, June 1933, pp. 26-67.

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BATTLE-AXES FROM TROY

Four battle-axes found in the second city of Troy have never before, to the best of my knowledge, been photographed. They were published by Dörpfeld¹ and figure in Hubert Schmidt's excellent catalogue² of the Schliemann collection at Berlin, where they now are. But it is strange that they should have aroused so little interest, either at the time of their discovery or subsequently.

They are clearly ceremonial battle-axes of a type known in Europe. The nearest parallels are from South Russia.³

Leaving on one side their archaeological importance, which in any case is difficult to estimate, a closer study of their character and of their technical qualities deserves particular attention. For they are, first and foremost, works of art, and were designed by their maker to be that and nothing else.

Of the two axes here figured one (plate I) is made of a dark lustrous nephrite, almost indigo in colour, and the other (plate II) of rich blue lapis lazuli flecked with brown spots and striated.

The axes of nephrite have stood the wear and tear of time without any damage at all. That of lapis lazuli has one blade point chipped off and some small flakes have become detached from the surface. Nephrite has powers of endurance above lapis lazuli and a certain elastic quality of resistance which prevents flaking.

All four axes are very finely polished, so as to enhance their beauty of colour and form. As examples of sculptured stone their rivals are to be found only among the jades and lapis lazuli carvings of early China.

No one, on seeing them in the Völkermuseum at Berlin, can fail to admire their perfect combination of colour and form, enhanced by detailed ornament and exquisite polish. No collector of jades and agates would hesitate to covet them for his collection.

¹ *Troja-Illion*, p. 375.

² Nos. 6055-8.

³ Childe, *Dawn of European Civilization*, pp. 58-60.

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Each axe has a band of small knobs in relief round the centre, meeting the shaft-holes at the middle, and each band of knobs is worked in exactly the same way. This close similarity, or actual identity of technique in the four axes, makes it most probable that they were all executed by one artist at the same time, or at least in that artist's lifetime. The knobs are made by dividing the area to be so ornamented into a chequer of squares of equal size with a wheel or file. The small squares so left in relief were then rounded by means of a tubular drill and the small cylindrical projections thus made were rubbed by abrasion into knobs. The squares of the original pattern can still be detected enclosing each knob and the circular mark made by the tubular drill round the base of each knob is equally clear.

Two of the axes have identical ornament as a whole. The knobbed band (shown in plate II) is flanked by a triple band of hatching, which looks as if it had been made by the use of an emery wheel. The plain bands that divide the hatching, like the plain bands of the axe in plate I, look also as if they had been done on a wheel.

The whole surface of each axe, as can be seen clearly enough in the photographs, is brought to a very high glassy polish, without any trace of faceting. Two of the axes (not illustrated) have a flattened surface on the upper part of the butt end.

These axes are clearly not the product of an ordinary maker of stone axes, whose usual method was merely to grind his stone upon a mass of harder stone in order to get the main shape, and then to smooth out the detailed surfaces by rubbing with smaller hard stones, and to bore the shaft hole with a very coarse form of tubular drill, helped by abrasive sand. Such crude borings can be seen half-finished in nos. 7219, 7227 and 7233 of Schmidt's catalogue.

Here we have the work of a highly skilled lapidary who was using a very fine reed-drill for the knobs of the central band as well as a wheel of the type used by gem-cutters. If we doubt the wheel we must at least assume the use of a very fine file of abrasive, such as a gem-cutter would use. In fact these instruments, the wheel or file, a very small reed-drill, and in addition an abrasive point such as was used perhaps for the hatching of one axe (not illustrated here) are part, if not the whole, of the tool-box of the Babylonian seal-cutter. There seems, therefore, some reason for supposing that these royal axes—for such they must be—were actually made by a sophisticated oriental craftsman. The shape of the axe is purely Nordic, and the nephrite of which three are made is a European material. But we are driven to conclude that

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for the finer objects of ceremonial use the kings of Troy preferred foreign labour.

Other axes of ordinary stone of the same general shape, but unornamented, have been found at Troy, so that the shape was in no way unfamiliar, but there are no axes in existence in Europe of the Bronze or Stone Age which can compare for a moment with these in workmanship.

STANLEY CASSON.

THE AUGUSTAN AGE

The proposals of the Italian Government to celebrate the bimillenary of the Emperor Augustus are so important and of such interest that we reprint, by permission, the excellent account written by the Rome Correspondent of the *Glasgow Herald* in its issue of 1 May last.

At a 'Congress of Roman Studies' Professor Paribeni announced the programme which the Italian Government intends to carry out in honour of the bimillenary of the great Emperor Augustus. The period for the celebration has been fixed for 1937-1938, but the programme is so vast that the time for its accomplishment within the next four and a half years seems all too short. It encompasses projects which have baffled engineers for centuries past. The most difficult item will be the recovery of the Ara Pacis. Monuments, temples, shrines, and memorials all over Italy are to be restored and a thorough exploration made in the vaults of the Imperial Augustan Mausoleum in Rome. It was Augustus who found Rome a city built of brick and left it a city built of marble. His reign is marked in history as the Golden Age of Roman art, architecture, and culture. The work ahead, therefore, means a restoration of the finest classic relics to be found in Italy.

The Ara Pacis was an altar enshrined in a miniature temple erected in Rome in the year 9 B.C. and dedicated to the Augustan Peace which the Roman Empire enjoyed on the return of the Emperor from the pacification of Spain and Gaul. From records the shrine is known to have been a wonderful bit of work, and fragments of it bear witness to the truth of all claims. The outstanding feature is a series of basso-relievo marble carvings (plate III) showing processions, triumphs, and portraits—a panorama of its age. It stood on the Campus Martius, the parade area which marked the junction of the Flaminian Way with the region of the Roman Forums. The Flaminian Way, still the Via Flaminia of modern Rome, now ends at the Porto del Popolo and con-

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tinues into the heart of the city under the name of the Corso Umberto, which therefore covers partly the site of the Campus Martius.

From the fall of the Empire, through medieval times and right up to the present day, the Corso Umberto, under a succession of different names, has always remained the principal street of Rome. Its frontage today is punctuated with well-built banks and institutions and ancient palaces of fine architecture. In the Dark Ages much, practically all, of Rome's classic memorials in this zone not only collapsed before cataclysms of man and nature, but became overlaid with the deposits of ramshackle superstructures, so that the Renaissance level, which still prevails, of the city was hereabouts many feet higher than the old Roman level. In 1431 a palace called the Palazzo Fiano was built—and away down among its foundations was the Ara Pacis of Augustus.

During repairs in 1568 a piece of the ancient carving came to light. It was ultimately discovered to tally with a section of sculptured marble used as a tomb-cover to a priest who died in 1628 and was buried in the Church of Gesu. The first piece found its way through the Medici family to France and to the Louvre, where it now is. The second piece is in the Vatican Museum. Another bit was unearthed and is now in the Uffizi Gallery at Florence. Attempts were made to reach the art treasure at last accurately located, but threatening cracks in the palace walls put a stop to that. In the late eighteenth and middle nineteenth centuries borings were made, and fragments were grappled up blindly and brokenly. Some of these were sold abroad—a fine head going to Vienna. One fragment was stuck on to the façade of the Villa Medici, which belongs to France; another is in the Rome National Museum.

In 1903 a serious and more scientific attempt was made to excavate the treasure. A regular shaft was sunk in the enclosed central courtyard of the Palazzo Fiano, and work was begun on a subterranean gallery to the altar site. But unsuspected springs of water were found, whose deviation by the digging imperilled the whole foundations of the buildings. A few more fragments of tantalising promise were recovered, but the general task was pronounced impossible by the engineers and the project was abandoned. The shaft is now a well. It is this abandoned job which it is now decided to accomplish.

Archaeologists and engineers are already in consultation to discuss ways and means. While they are engaged on this main work of recovery, the Government is preparing to negotiate for the return and concentration of all the scattered portions. The Vienna fragment has already been bought in; the Rome and Uffizi Museums will be told

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to stand and deliver ; and exchanges for other works of art will be offered to the Vatican and France.

By the time that the bimillenary festivals begin it is intended that the Ara Pacis be reconstructed on the Capitoline Hill.

The other big undertaking is the isolation of the tomb of Augustus and his kindred, and its complete subterranean exploration. The tomb is about the size and shape of the Albert Hall. It is also on the Campus Martius site, just off the Corso. As a mausoleum it consisted of central burial vaults encircled overhead by a surrounding marble wall four storeys high, but instead of storeys the space cupped within the walls above the vaults was filled in with earth which rose high above the walls in a tree-covered dome. The earth was scooped out in the Middle Ages, and the shell in course of its long history has served as a market, a fortress, and a bull ring. It is now domed over and is Rome's principal concert hall—still known as the Augusteo.

THE BAY OF ELEUTHERAE

Westwards of Kalamitsa-Antisara is a long indented stretch of coast consisting, like the Kavalla region, of grey granite bluffs. There is little earth or cultivable land until Palaio Metochi is reached. Here is both beach and fertile hinterland, but, on the other hand, no defensible site for a city.

The modern village of Heraklitsa is no better situated. But the great bay of Eleutherae, or Deuthero Cove as it is called on the Admiralty Chart, is a superb anchorage for ships of light draught. In shape and accommodation it is a smaller version of the type of Mediterranean harbour represented by those of Melos, Syracuse, or Lemnos. But, like them, it is too large in area and has too wide an entrance to permit of proper defence. Its entrance is only to a certain extent covered by the small rocky island known as Xeronisi.

In a harbour of this shape the natural place for the siting of a Greek city, on the analogy of Syracuse or Halicarnassos, would be on the long promontory known as Cape Vrasida,¹ or else on the opposite projection on the north side of the harbour. But the latter is ruled out because it is too high and inaccessible from the shore, consisting as it does of sheer cliff on all sides. Cape Vrasida, on the other hand, is low

¹ I have suggested tentatively (*Macedonia, Thrace, Illyria*, p. 46), that this name, otherwise inexplicable, preserves that of Brasidas the Spartan.

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and almost level, barely fifty feet at the most above the sea. But it is too narrow to hold a city and too exposed.

But at the extreme southwest corner of the bay stands a large Byzantine castle in an extremely good state of preservation, known vaguely as Kaléh Metochi.² It overhangs a rocky outcrop at the extreme south end of the long sandy beach that begins on the north at the refugees' village of Nea Perama just east of Eleutherae. The plan of the castle, curiously enough, is the same as the plan of Kalamitsa and of Hellenic Philippi. Two lateral walls and a sea wall form the triangle, at the apex of which is a square tower of great strength. The tower, unlike the walls, is built of squared blocks of stone, many of which are evidently from earlier buildings. There are also many fragments of well-cut marble derived from ancient structures, amongst them part of a large column in local crystalline marble measuring 40 metres in diameter and 1.30 in length, but unfluted and perhaps unfinished. Near the tower, and perhaps detached from it, is a curious marble fragment upon which in relief is a design which suggests that it is a fragment of a large marble seat.

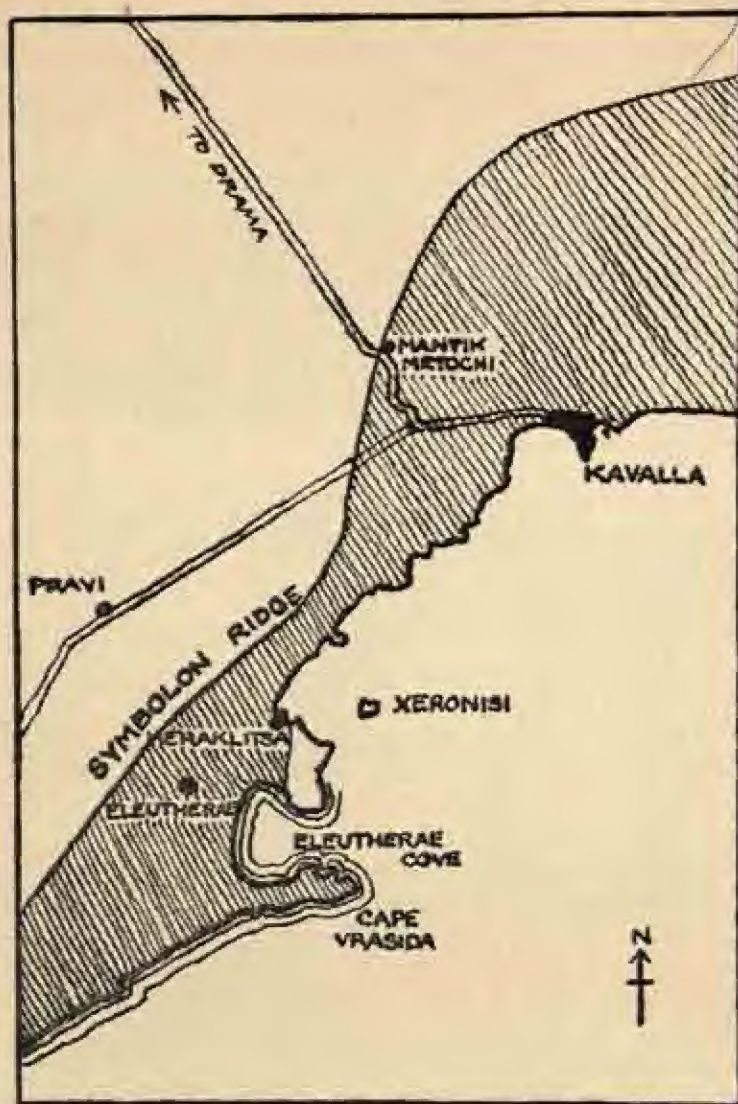
Immediately to the south of the tower is a depression at sea-level and beyond it is the main spur of Vrasida point. The whole of the coast here is honeycombed with Bulgarian forts and trenches from the campaign of 1916-18, since an Allied landing was daily expected in this excellent bay. Near the highest of these forts or blockhouses is a small stretch of granite wall of ancient construction of the same type as that at Kalamitsa. But the destruction caused by the Bulgarian works is such that its purpose cannot be made out. But its direction is north and south, so that it may be a cross-wall over the spur.

In any case the presence of an ancient site in the immediate neighbourhood is indicated by these various ancient remains and by the fact that the only safe site in or near the harbour for a settlement would be that approximately covered by the Byzantine castle.

The Byzantine castle itself is a splendid building of great strength. In the face of the sea-walls are built in brick inlay two fine crosses.

² Heuzey (*Mission*, p. 11) is one of the few travellers in Macedonia to give even a mention of this castle. But he strangely refers to it as Eski-Kavalla. I can find no record of any sort for it ever having borne this name. On the other hand the village known as Eski-Kavalla is situated a few miles north of Kavalla. See Svoronos, *Hellenisme dans la Macédoine*, p. 71, who follows the cartographer Chrysochoos. Modern maps in general place it in the same region, the Greek General Staff Map placing it near the hamlet of Korzou just east of the Kavalla-Doxato road.

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LIMESTONE

SCALE OF ADMIRALTY CHART 1086.

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But there is no inscription to be found. The general character of the building suggests the tenth or eleventh century, though it would be rash to be precise in a matter where so little chronological research has been carried out. Within the walls are extensive remains of domestic buildings, though no trace of any church or chapel. The general character of the walls resembles the Byzantine parts of the castle of Ainos, further along the coast, though the plan is different. Ainos was one of the strongholds of Thrace which Justinian fortified against the inroads of barbarians³ and probably this castle was another of the series. Its position is such that it can control the low pass south of Pangaeum that allows of passage from the Strymon mouth through to the Philippi plain near the modern Pravi, and that it protects this convenient harbour from sea-attack and from becoming the rendezvous of pirates. Nor is it a coincidence that the Bulgarian armies fortified this particular coast more strongly than any other part of the Thracian coastline. Their principal anxiety was an Allied landing in the bay with the intention of sending a 'cutting out' expedition inland to the railway at Drama.

STANLEY CASSON.

THE 'INTERRUPTED DITCH': A POSSIBLE EXPLANATION

One of the chief puzzles of British field-archaeology is the 'interrupted ditch' which surrounds the interior of neolithic camps. A fuller description is unnecessary, for the expression explains itself; and examples have been given, with plans and air-photographs, in Dr Curwen's article on Neolithic Camps (*ANTIQUITY*, 1930, IV, 22-54). Since that article was written it has been found, by Dr Curwen himself, that there is a row of post-holes set round the edge of some of these interrupted sections of ditch at the Trundle (*Sussex Arch. Collns*, LXXII, 106-111). From this it seems to follow that the ditch-fragments were covered by some sort of sloping roof or pent-house, that they were in fact pit-dwellings or huts of a sort. Such an explanation would account for the abundance of the potsherds and other relics found in the ditches, as at Windmill Hill and Abingdon; and in this connexion it is worth noting that the Abbé Breuil, after visiting Windmill Hill, gave it as his opinion (in conversation with the writer) that the occupants lived in the ditches there. There are difficulties in accepting this view, the stratified and quite normal silting of the ditches being one of them; also it runs counter to our knowledge of the arrangements inside later 'camps'.

³ B.S.A. xv (Hasluck), p. 250.

PLATE I



BATTLE-AXE FROM TROY | Length 23.5 cm. (See p. 337)

PLATE II



BATTLE-AXE FROM TROY. Length 48 cm. (See p. 337)

PLATE III



THE ARA PACIS, ROME: bas-relief in marble. (See p. 339)
Ph. Anderson, Rome

PLATE IV



CAMP OF THE BENI MGUILD TRIBE, MOROCCO. (See p. 344)
By permission of "National Geographic Magazine"



UNDECKED SAILING BOAT FOR IMPORTING WOOD, TRERIZOND. (See p. 345)
Pl. O, G. S. Crawford

PLATE VI



LOCAL LIGHTERS AT TREBIZOND. (See p. 443)
PH. O. G. S. Crawford

PLATE VII



STOW ON THE WOLD, GLOUCESTERSHIRE. LOOKING WEST. (See p. 312.)
P. George Allen, copyright reserved

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of the Iron Age, where ditch-living was certainly not practised. Nevertheless the theory does explain most of the facts better than any other, and the evidence of the Trundle post-holes (which are found on *both* sides of the ditch) is a hard nut to crack.

Further support for this explanation comes, by analogy, from Morocco. There, a certain tribe called the Beni Mguild pitch their tents in a circle round their flocks and herds, to protect them from raiders and also (we imagine) to prevent them from straying (plate iv). 'The space between the tents is filled with thorny brush'. The tents themselves thus form the defensive ramparts. May not a similar practice have been observed in Britain? An obvious objection is that with such an arrangement the digging of ditches at all would seem to be superfluous or even an added inconvenience. On the other hand it would add to the roof-space which, with the narrow width postulated by the ditches, could not otherwise have been adequate. The theory is further supported by the fact that the neolithic camp-ditches, wherever excavated, have been found to have broad, flat bottoms.

We have always imagined that the Neolithic and early Bronze Age people of Britain were predominantly pastoral, and a theory which explains their chief habitation-sites on these lines is therefore *a priori* acceptable.

The illustration is reproduced direct from the *National Geographic Magazine*, March 1932, p. 279, by courtesy of the Editor. Our attention was first drawn to it by Dr Cecil Curwen over a year ago, and we have been trying ever since to obtain from Monsieur Flandrin, whose article it illustrates, a photographic print, and his permission to use it, but without success. We hope that he will forgive us for now publishing it again without; we do not wish to hold it up any longer, in view of its interest for British prehistorians. O.G.S.C.

BOATS AT TREBIZOND

Despite all that has been written about the ancient ships of Greece and of Rome, there still remains so much unknown that to make any sort of reproduction or model needs a free use of the imagination, freer probably than is generally realized. But as the study of the many curious types of boats which survive in remote corners of the world advances it becomes more and more apparent that there is hardly any boat-building usage of the ancient world which cannot be matched by some practice still in use, although possibly in some totally different part of the world.

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The double-steering oars, one on each quarter, still found in the large proas of Java and Malaya, are arranged exactly as were the double steering oars of the vessels of Greece and Rome, while, to mention a direct survival, the Ferillas of Malta still preserve at their bows the remnant of the ancient ram of the war-galleys.

When, therefore, the Editor was good enough to show me photographs which he had taken in 1932 of the boats of Trebizond, I examined them with great hopes of finding some points which would throw new light on ancient Greek shipbuilding.

The photographs show three distinct types of boats, small undecked sailing-boats in which wood is imported into Trebizond (plate v); ordinary beach-boats which differ little from those to be found in many parts of the Levant; and local lighters of a most interesting type (plate vi).

As has always been usual in the Mediterranean, all these boats are carvel-built, that is with successive planks placed smoothly one above the other, and not overlapping as in a Thames skiff.

The small sailing boats are all one-masted and rigged with one large lateen sail, to which some of them add a jib forward, but any strong resemblance to their predecessors of old is negated by their transom sterns, planked straight across from side to side. For this type of stern seems to have been unknown until the beginning of the 16th century, when it appeared in Western Europe. It is also worth mentioning that there is no evidence of the use of the lateen sail in the Mediterranean until after the Arab conquests. Previously the only sail in use was the simple square sail.

But these boats do show one survival of ancient practice and that is the way in which they are brought into the shore stern first, just as were the Greek galleys, while their cargo is landed from a gang-plank over the stern. My attention was attracted to this point by Mr Crawford and its importance is increased by the fact that below water the stern-post is definitely rounded off, so as to facilitate this landing from the stern. In general, however, these boats do not differ greatly from many to be found among the Greek Islands.

If we turn now to the heavy round-bottomed lighters (plate vi), which are seen drawn up on the beach, we find a type of boat which owes little or nothing to its more developed western sisters. Both bow and stern are turned upwards in a graceful curve, and stern can only be distinguished from stern by the grapnel at the bow and by the rudder-irons on the stern-post. At each end a very noticeable feature

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is formed by the two posts which project upwards with a space between them. These knight-heads, as they used to be called in the 17th century, when they were decorated with the carved heads of knights or Saracens, obviously serve nowadays as a lead for tow-ropes.* But the way in which they are fitted one on each side of the stem, and of the stern-post, together with their upward and inward curve, at once suggest a method by which the high incurving sterns of Greek galleys and of Roman corn-ships may well have been built up. The construction of these sterns has long presented a difficult problem for, if the heavy stern post were carried far up, it must have been very cumbersome, while timber with an adequate curvature must have been hard to find. But the photograph of the Trebizond lighters, which exhibit the beginning of the same inward, shows that the heavy stern-post ends at a comparatively low level, while the two much lighter timbers, one on each side of it, start comparatively high up and thus could easily be prolonged to form either the fan-shaped stern of a Greek galley or the swan-shaped stern of a Roman sailing ship. With this similarity established, it would seem that a detailed examination of the internal construction of these craft might well throw light on the general structure—the ram, of course, excluded—of the galleys of Ancient Greece.

G. S. LAIRD CLOWES.

AN ENGLISH HILL-TOP TOWN

Stow-on-the-Wold, where the wind blows cold, is $3\frac{1}{2}$ miles north-east of Bourton-on-the-Water (and that's next to Slaughter). The old rhyme seized upon the essential feature of Stow—its exposed situation; and this of course was due to its position, unusual for an English market town, on the top of a hill. There are others comparable—Shaftesbury in Dorset is the most striking perhaps, commanding as it does a view over the wide vale of Blackmore; a fact reflected perhaps in the name of its Celtic predecessor. That such a predecessor existed is implied by the terminations both of Shaftesbury and of Alcester, the district southwest of the town in which Castle Hill lies.

Devizes is another, and its position is, geologically, exactly comparable with that of Shaftesbury. But, although Roman remains have been found on the eastern suburbs, there is no evidence that a Celtic hill-fort existed there. The existing earthworks are the remains of the medieval castle, which has determined the curious plan of the town and its outer streets. The name itself is unique in being of medieval Latin

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origin (*apud divisas*, at the boundaries). Old Sarum was a hill-town of prehistoric origin until it was deserted. But Stow-on-the-Wold is still a flourishing market town. Evidence of its prehistoric ancestry comes from three sources. In 1920 I was struck by the plan of its parish boundary on the 6-inch map. This follows a curving line round the hill, strongly suggestive of the contour of a hill-fort's ramparts (see plan opposite). I examined the line so marked on the ground; but while I found nothing inconsistent with this explanation, I found no remains of ramparts or ancient walling to confirm it. In *The Times Literary Supplement*, 8 Feb. 1923, p. 92, is a letter from Dr Grundy pointing out that Stow was the site of Maethelgeres burh mentioned in a charter of 949.¹ Dr Grundy had reached this conclusion on the quite independent evidence of Saxon land-boundaries. His evidence was far stronger, of course, than mine, which it so strikingly confirmed. The name, now changed into the form Mangersbury, survives in that of a small village on the south-eastern outskirts of Stow (see plan). The third source is the air-photograph reproduced here (plate VII). It is one of Major Allen's; and he took it because he saw at once that the wall which encloses the town so neatly must follow the line of an older rampart. The wall in question is actually the parish boundary already referred to.

Ancient remains have been found in Stow from time to time, the most remarkable being a carved stone figure which was recorded by Mr Passmore. To the north of the town burials of the Saxon period have been found beside the Foss Way, whose straight course may be seen crossing the photograph immediately beyond the town. The nucleus of the existing (and medieval) settlement was undoubtedly the market-place which, it will be observed, lies just outside the presumed limits of the older hill-village. It seems probable that, in the Roman period, an open roadside settlement grew up just outside the ramparts, beside the Foss Way. That would be in accordance with what happened elsewhere in Romano-British times, and indeed happens still wherever an important thoroughfare passes near, but not through, an older settlement. We know that the hill-forts were often abandoned when the *pax Romana* made their defences obsolete; and that villages

¹ Birch, *Cart. Sax.* 882; see Dr Grundy in *Trans. Birmingham Arch. Soc.* 1927, LI, 181 (issued also as a special volume by the Oxford University Press, 1931, *Saxon Charters of Worcestershire*, 181).

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sprang up outside.² At Stow there has been a reversion to the pre-historic régime, but the open settlement has also survived.

The name itself used to be Edward's Stowe. We do not know exactly what the significance of Stow as a place-name was, except that it generally had ecclesiastical or 'sacred' associations. Here possibly the undoubted antiquity of the place may have been a factor which contributed, perhaps indirectly, to its sanctity.

O.G.S.C.

THE ROMAN ROAD FROM LEWES TO LONDON

The line of this road has already been explored across Sussex, Surrey and Kent by Mr I. D. Margary, Mr James Graham and others, as far as the southern boundary of West Wickham parish, where it is followed by the straight line of the Kent, Surrey boundary to the north end of Rowdown wood.

The county boundary then bears away to the west, but excavations made during April and May have shown that the road continues its straight course across West Wickham parish, passing about 300 feet to the west of the church.

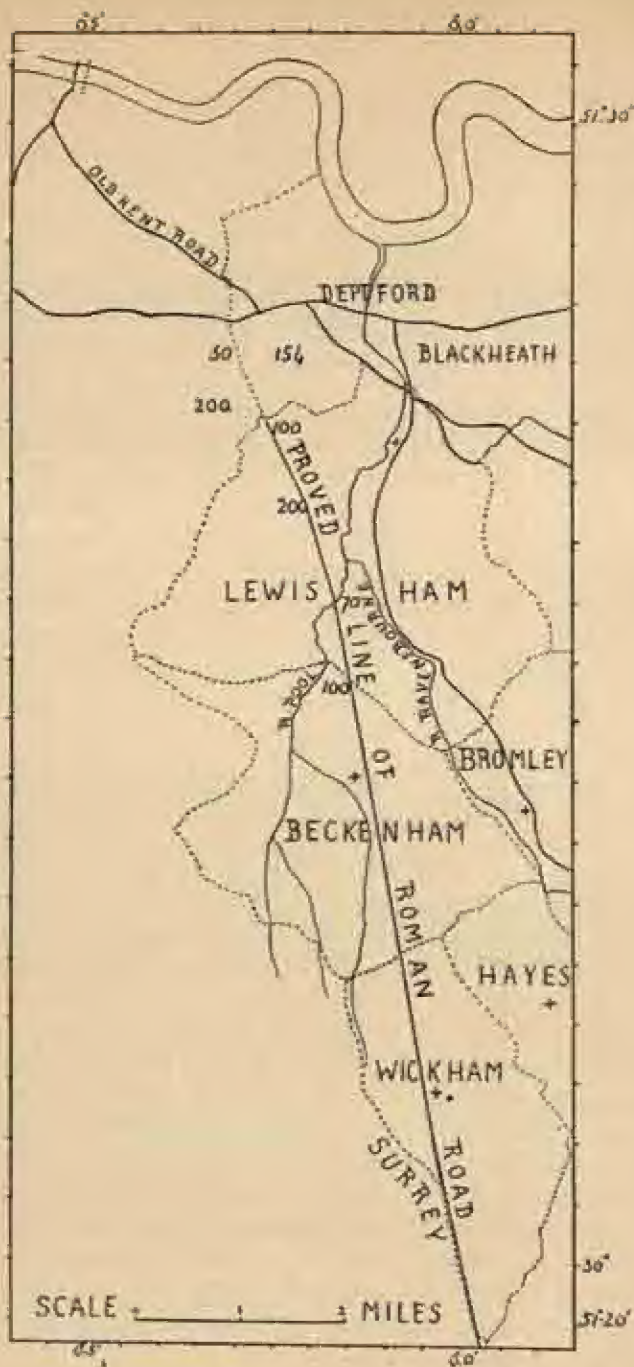
Several sections were cut, which showed a metalled road 15-18 feet wide, of the usual construction of a layer of large flints at the base, covered with 5-7 inches of washed flint ballast and a capping of the local yellow gravel. The depth below the surface was 12-18 inches.

Following the straight line across West Wickham and Beckenham where good sections are not easy to find on account of the gravel subsoil and the numerous houses, a long line of undisturbed road is found in Lewisham parish between the Beckenham boundary and Southend Lane. The metal is here 30 feet wide and of the usual construction, 11 inches thick. The same line leads to the footbridge across the Pool river at the end of Broad Mead road, where the road can be traced.

Continuing this alignment would lead to New Cross station (Grove Park line). The roadway however turns 5° west and is found again on the top of Blythe Hill, where it can be traced as a hard surface of gravel across the clay subsoil, but only small sections are intact.

The top of this hill provides a fine sighting point. Southward the whole line of the road can be seen as far as Tatsfield and to the west of north there is a clear view of London at old London Bridge. The road now takes this direction, turning another 8° to the west. At the foot

² Compare for example Ebsbury, *Wessex from the Air*, 120.



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of the hill a section showed 21 feet width and 7 inches of gravel on the large flints.

The same line takes one in something over half a mile to the London Playing Fields and here the road is intact for 300 yards. Part of it was in use in the 18th century and had been repaired, but other sections gave the usual construction untouched. Since 1800 it has been buried under 21 inches of clay, probably from the excavations made for the Croydon canal.

Beyond the Lewisham boundary, the Surrey boundary follows the line of the road for a short distance and the Deptford boundary for some distance further. The rest is built over, but the line is leading straight for London Bridge, and this makes one wonder whether this was not the earliest road towards the city from this direction. If the Rochester road had been there the quickest way to make the junction would have been to continue the original line due north. If it be argued that the Thames marshes would interfere with the direct approach to the bridge from this direction, the road might easily have taken a direction slightly more to the west from Blythe Hill to avoid them, but in fact it is on the straight course along the low-lying ground. Presumably the Rochester road joined it somewhere near where the Surrey canal cuts the Old Kent road.

BERNARD F. DAVIS.

THE MAGLEMOSE HARPOONS

Mr THOMAS SHEPPARD, of the Municipal Museums, Hull, writes as follows :—

' In ANTIQUITY for March, H. and M. E. Godwin describe British Maglemose harpoon sites but no mention whatever is made of papers written to show that the Maglemose Harpoons at Hornsea and Skipsea were forgeries. Whether this view is accepted or not, it is only fair that such information should be given to enable students to judge both sides of the question. When these harpoons were examined by a special committee appointed by the Royal Anthropological Institute (Sir Hercules Read as chairman), it was recorded that both were unquestionably the work of one individual. This being so, is it not remarkable that, after 4000 years—the alleged date of the harpoons—both should have been found within a few weeks of each other by one individual, and that one harpoon, according to the finder, was in a glacial deposit and another in a post-glacial deposit? Further, a special committee appointed by the British Association demonstrated that there was no peat at Hornsea where one of the alleged harpoons was said to have been found (see *Naturalist*, May 1930) '.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

In the Ashanti rising of 1900, the war fetish of the nation was captured by the faithful levies under Captain (afterwards Sir Cecil) Armitage, and presented to him. It proved to be a bronze tripod ewer of English workmanship, dating from the 14th century. At the same time there was found a silver standing punch bowl with the London hallmark of 1666-7, which had been repaired by native methods. Both these most curious monuments of early trade between England and Africa have been purchased by the Christy Trustees, and presented to the Museum. (*British Museum, Bulletin of New Acquisitions*, 10 June, 1933).



A joint committee has been formed by the Letchworth Naturalists, the Hitchin Regional Association and the Baldock Society for the excavation of Willbury Camp (see *ANTIQUITY*, 1931, v, 69). The pottery already found in the camp is of Early Iron Age A and Belgic types, and there are records of Roman objects being found there. The work will be carried out under the superintendence of Mr E. S. Applebaum.



The British School of Archaeology in Iraq (Gertrude Bell Memorial) is now a going concern, with an income from subscriptions and endowments of about £700 a year. It has already carried out one season's excavation at Arpachiyah, near Nineveh, under the direction of Mr M. E. L. Mallowan. This has revealed two occupation layers on a village site, an outer layer with painted egg-shell pottery of northern affinities and a later layer with southern and eastern affinities. The latter is estimated to end about 4000 B.C. Work is to be continued, and subscriptions are invited. We cordially support the appeal (Hon. Secretary, British School, 20 Wilton Street, London, S.W.1).

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Amongst the projected activities of the School are the publication of a journal devoted to the archaeology of Iraq and neighbouring countries, the foundation of a studentship or travelling fellowship tenable in Iraq, and the formation of a library. The work of organization in the first instance and its programme and achievements up to the present show that the School is being capably directed and fully deserves the support of those who can afford it. (Information from 1st Report of School, circulated by post, and from *The Times*, 5 May, and *Illustrated London News*, 13 May, p. 686).



The Roman bust which was found in the neighbourhood of Acireale, near Catania, in 1730, was identified first as that of a faun, then as that of Cicero, and finally, 'with much hesitation', as that of Julius Caesar. We can easily understand the hesitation with which the art-experts passed from a faun, via Cicero, to Caesar, and wonder who it will be next? (*The Times*, 5 May).



The National Monuments Advisory Council has submitted to the Government of Ireland a scheme for an Archaeological Survey of Ireland—a formidable but necessary undertaking. (*Irish Press*, 9 May). We throw out the suggestion that a Map of Ancient Ireland (say in the Early Christian era) would be a commendable and profitable venture. Details to be had on application.



Mr A. Jackson has examined some of the predynastic grain found in the Fayum by Miss Caton Thompson. He finds 'that this prehistoric barley was to all intents and purposes identical with that in cultivation in Egypt at the present time, and clearly distinguishable from the barleys now grown' in other Eastern countries. He concludes that, 'since no appreciable improvement can be seen to have taken place in it during the last seven thousand years, a very long time must have been needed for this barley to have developed from the wild state to the degree of perfection which this specimen shows; in other words, the origin of agriculture must have been long before 5000 B.C.' (*Nature*, 6 May).

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The discovery of a human skull and other bones by a man ferreting led to the excavation of a cave at Largalinny, near Derrygonnelly, co. Fermanagh. ' Few detailed finds were made, but they include, besides human bones, several bones of animals . . . The place had been a small natural cave which had been enlarged . . . A flat space in front . . . had been roughly paved, and the entrance finally sealed with stone walling. It thus resembles closely the type of big stone monument known as the horned cairn '. (*Belfast News Letter*, 16 June).



A similar cave, as it would appear, was found at Gop, Flintshire (see *ANTIQUITY*, 1927, I, 419, plan) and was regarded as last used for sepulchral purposes. It is becoming clear that long barrows and cairns and megalithic burial-chambers generally are *typologically* associated with caves; and that they may represent an attempt to construct above ground an artificial cave-dwelling for the dead. In other countries these rock-cut tombs are closely associated with megalithic burial-chambers (*e.g.* in central and southern France, in the Balearic Isles, and at Roknia in Algeria). But, plain though the typological connexion seems, the actual historical evolution is still very obscure. The subject is, however, too abstruse for treatment here, and we shall deal with it more fully on another occasion.



Another matter which is ripe for treatment is the racial character of the neolithic inhabitants of Britain. The orthodox view that all such were long-headed is incontestable, unless we regard the earliest beaker immigrants as neolithic (which we do not). But the opinion that the long barrow people belonged to the Mediterranean race is, we think, much less certain. It is more likely that they were a branch of the Nordic long-heads, and came to Britain by the usual continental routes from northern Europe. This theory is supported by some skeletal evidence, and is much more consistent with the archaeological evidence.



Professor Rostovtzeff has described in a lecture delivered to the British Academy the Biblical paintings which he has found in a synagogue and a Christian chapel at Dura, on the Middle Euphrates,

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midway between Antioch and Seleucia. From the evidence of coins it is considered that Dura was evacuated soon after the middle of the 3rd century A.D. The frescoes, which have Aramaic inscriptions, represent cycles of Biblical history—of Moses, the Kings, the Ark of the Covenant, of the Desert, and scenes in the lives of Elijah and of Ezekiel. An abstract of the lecture is reported in *The Times*, 13 July, p. 9.

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The Expedition formed under the auspices of the British Museum and the British School of Archaeology in Iraq has completed the first season's work at Tal Arpachiyah, a prehistoric mound in northern Iraq, near Nineveh. On the highest ridge of the mound were found 10 different village-sites superimposed on one another. The top four settlements revealed painted pottery closely related to the "Ur Al 'Ubaid ware" of the earliest South Mesopotamian cities. On other levels quite a different type of ware was found. In the sixth settlement treasure of great interest was discovered in a house which had been destroyed by fire, and the roof had fallen and buried a large collection of painted pottery, stone vases, terra-cotta, and cult figurines. Against the walls were a number of extraordinarily well-preserved painted vessels and remarkable polychrome plates, some in three colours. (*The Times*, 14 July, p. 13).

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Sir Flinders Petrie reports in *The Times* (2 June, p. 10) on the work for the third season of the British School of Egypt at Old Gaza (Tell el Ajjūl). The earliest palace site, about 3200 B.C., found last year, was cleared. Other work included the examination of the cemetery, where the family tomb of an Egyptian governor of the time of Tutankhamen was opened. It contained a quantity of Aegean and Cypriote pottery as well as vessels of alabaster and bronze.

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The excavations at Khorsabad, directed by Dr Frankfort for the Oriental Institute of Chicago, have been rewarded by a discovery of the first importance, nothing less than a complete list of Assyrian Kings, with reign-lengths, going back to the third millennium. This, if there are no gaps, will not only provide a secure chronology, but will probably also, by means of synchronizations, place the Sumerian

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lists upon a secure footing. Thus the chief outstanding and absolutely fundamental problem of archaeology seems likely to be nearing a satisfactory solution (*Zeitschrift für Orientforschung*, Band 8, heft 6, p. 328).



The American School of Prehistoric Research, directed by George G. MacCurdy, is turning its attention towards Yugoslavia and the Danube lands. Here, as we have long maintained, lies the solution of many basic problems of European prehistory. The region at the confluence of the Save and Danube contains a galaxy of first-rate sites (such as Vučedol and Jakovo) still awaiting expert treatment. The May Bulletin (no. 9) reports on the activities of the School, which include general reconnaissance, and excavations at Starčedol, and a valuable anthropometric reconnaissance in the virgin field of Montenegro. Dr McCown reports on the fossil men of the Mugharet es-Sukhul.



Dr E. Cecil Curwen reports that he has cleared at Harrow hill, near Worthing, Sussex (6 inch, 50 SE), the complete ground-plan of a late Bronze Age-Hallstatt hut surrounded by post-holes. He has also found a Neolithic pit-dwelling with hearth, much ash, Windmill Hill pottery, rough flint knives, scrapers, two axes—one of which is polished and the other of typical flint-mine type; both are fragmentary and burnt in the fire. The dwelling is about half a mile from the Harrow Hill flint mine and may be that of a miner.



Professor V. Gordon Childe and Mr Mansfield B. Forbes have resumed the examination of the Stone Circle (recumbent stone type) of Old Keig, near Alford, Aberdeenshire, which last year yielded in a trial excavation pottery of Scarborough-Hallstatt type.



Dr H. Frankfort has contributed two articles to *The Times* (10-11 July) on the important discoveries made at Tell Asmar, some 50 miles from Baghdad, which has been identified with Eshunna. In the first article are given some interesting details of domestic architecture of Akkadian times, described from a well-preserved house typical of many others which are almost intact. One of the most marked features is

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the advanced system of sanitation revealed. The second article includes a reference to the list of Assyrian kings already mentioned and of an inscribed monument which led to the discovery, in an almost deserted valley, of the remains of extensive water-works of which a remarkable feature is an aqueduct of magnificent ashlar masonry 900 feet long and 75 feet broad in its widest part. A fully illustrated article by Dr Frankfort was also published in *The Illustrated London News*, 15 July.

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Among the finds at Tell Asmar was a hoard of copper objects, enclosed in a pot. These have been examined by Dr Cecil H. Desch, of the National Physical Laboratory, who in a letter to *The Times* (28 July, p. 15) says that 'among them was a bronze open-work dagger handle, in the slot of which was still wedged a fragment of material, evidently derived from the original blade. A lump of similar material was loose inside the handle, being too large to fall through the perforations. On analysis this material proved to be rusted iron, converted as usual by long contact with the earth into a hard, magnetic, crystalline mass. The position in which it was found leaves no doubt that the blade of the dagger was of iron. Moreover, analysis shows that this iron is free from nickel, and is therefore not of meteoric origin'.

'The find is stated to be of the same period as those at Ur and Kish . . . The occurrence of an iron object of terrestrial origin at such an early date is most striking, and of the first importance for the history of ancient metallurgy'.

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The Academy of Athens has continued the excavations begun some three years ago with the object of finding the site of the Academy of Plato and is of opinion that the foundations of the building have undoubtedly been discovered. The evidence for these conclusions is given in a report to *The Times*, 22 June, p. 13, with illustrations 23 June, p. 18.

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In *The Illustrated London News* for 3 June (p. 802) Mr George Horsfield, Director of Antiquities in Transjordan, gives an account of Kilwa, in the Jebel Tubaiq, near the Hedjaz frontier, which he describes as 'a new station revealing for the first time the presence of Arabian prehistoric man'. Some remarkable rock-drawings are illustrated.

Reviews

GREEK COINS : a history of metallic currency and coinage down to the fall of the Hellenistic kingdoms. By CHARLES SELTMAN. Methuen, 1933. pp. XIX, 311, 9 text illustrations, 4 maps and 64 plates. 25s.

This is the most convenient, the best illustrated and the clearest handbook on Greek numismatics available at a modest price. The author and publishers are to be congratulated, for the book will serve the historian, the amateur collector, the specialist who wishes to find a brief statement of the latest and most important theories, and the student of Greek art as such.

Mr Seltman has made a readable book which is distinguished by a clear emphasis on the continuity of the subject and of the steady development of economic ideas. For Greek currency has a definite and continuous history in which, time and time again, the historian can detect the workings of cause and effect according to the economic laws of the period. To modern economists the use of gold in currency will be studied with particular interest. Mr Seltman shows in his earlier chapters how a mere metallic currency based on weight becomes money when those weights are standardized, and how money becomes coinage when those standardized issues are franked by authority. Such franking produces the heraldic device on the metal, and so metal as such becomes a coin. The first plate in the book is of great value since it illustrates this development and shows how the ring or pellet of gold slowly turns into the stamped coin.

Gold and bronze were the currencies of the Bronze Age in Greece because Greece at that time seems to have had but little access to silver. Later, as the mines of Laurium and Pangaeum became available and historic mainland Greece was no longer able to tap the sources of gold known to the Mycenaeans, silver became the sole vehicle of a mono-metallic currency. Gold remained in use in the regions where it was most common, such as Anatolia, and was only resorted to in times of crisis when supplies of silver ran short in the regions where silver had been the main vehicle. Later in the 4th century when Philip and Alexander drew on the new goldfields of Pangaeum the world was flooded with gold coinage as part of a bimetallic system.

What is so significant about ancient currency in Greece is that it never became a monopoly in private hands and that tyrants or kings struck their issues solely for their citizens, and for the commercial purposes of their dependants. Banking as such seems to have developed in the temples rather than in the palaces.

One ancient economic law that is now no longer in operation can be traced operating at various periods : as supplies of silver or gold suddenly increased by unexpected discoveries of ore, so the weight of the standard coin increased slightly to keep pace with the increased cheapness of the metal. But this law no longer operated after the 5th century, for the gold coins of Philip and Alexander introduce the modern law, according to which currency increases in issue rather than in weight as metal becomes

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cheaper. This ephemeral nature of what are called monetary 'laws' is interesting in view of the insistence of economists upon the immutability of 'laws' in general.

In technical matters Mr Seltman here incorporates in brief much solid research work that he has already published elsewhere. The difference of life between the obverse and reverse dies is a distinction which has made it possible to establish many important chronological distinctions and series on purely internal evidence. The overlap of the series first issued by Pisistratus with that issued by his opponents who succeeded his exile can be established scientifically by the fact that the later issue uses a reverse punch employed for the earlier. Another important means of establishing a group is a classification based on similarities of *fabric*. For it must be remembered that coins more than any other objects of archaeological study depend for their arrangement and classification upon internal evidence. Their migratory habits make evidence of location of little value, and their continuance in use for long periods makes them of little use as evidence for dating except in a very limited degree. Coins themselves must yield up their own secrets. Technique, fabric, inscriptions and artistic style are the means by which their sequence is mainly fixed. Literary records are few but what there are help considerably. The author has drawn upon them and made full use of all that Greek history and literature tells us.

In some matters Mr Seltman is a little dogmatic, in others a trifle too optimistic. His statement (p. 3) that 'among the nations that first hoarded gold, art, contemplation and literature first had their birth' fails to carry conviction when we examine Ireland of the middle Bronze Age or Transylvania in the later Bronze Age. These were no homes of literature or contemplation nor were the Incas and Aztecs the originators of culture in the New World of the type suggested. On the other hand Homer was written in an impoverished world and the Norse sagas were the product of a culture which was not deeply imbued with the gold-lust.

Mr Seltman confidently identifies the issue of coins made by Pisistratus in exile in Macedonia by means of the peculiar *theta* on the reverse. This *theta*, composed of dots, is thought to indicate, in the manner of coins, the well-known sun-symbol or rosette so common in Macedonian coinage. This is frank theory posing as fact. He admits that the coins are barbarous in fabric and the obvious conclusion to be drawn from the dotted *theta* would be that the artist, incompetent as he was, found it extremely difficult to describe a small circle with his drill without letting the drill slip. The easiest way out of his difficulty would be to make the circle by means of a series of vertical pressures of the drill. This is the commonsense explanation of this particular characteristic of the coins, and to attribute a series to Macedonia on this evidence is most precarious. All early die-cutters and gem-cutters find the greatest difficulty in using the drill at an angle, especially where very small circles are to be made. Mr Seltman's own plates VII, VIII, IX and XI show clearly how die-cutters of Sicily, Macedonia and Euboea, faced with the problem of cutting a circle, dodge it by making the circle of dots. If after making your dotted circle you run over it with a graver, or even with the drill, once the circle has been laid out, you can make a plain circle. This is done, for instance, in the aristocratic issues of Athens seen on plate III.

In another case Mr Seltman is too optimistic. The issue of Olynthus with a fine design of a cow he thinks (p. 69) is 'Minoan' in appearance and suggests that Olynthus originally held a Mycenaean settlement. Certainly Mycenaean elements are common in Chalcidice, but they do not antedate 1200 B.C. and if Mr Seltman is prepared to identify this design as 'Minoan' then he must equally agree that the superb Euboean

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coins of plate XI are equally if not more 'Minoan'. Yet in the latter case his explanation for the use of the cow design is that Euboea was 'the land of fine cattle'. He cannot have it both ways.

There are some minor points that deserve comment. The head on the coins of Potidaea (p. 67) is not of Aphrodite but of an Amazon wearing an *alopekis*. Dipoinos and Skyllis did not bring over the art of sculpture from Crete to Greece 'in the seventh century' (p. 173).

General readers—and there will be many of this admirable book—will be amazed to see a representation of Jehovah (plate XXXII, 1) labelled as such on a coin of Philistia, as they will also be to see on a Thessalian coin (plate XXXIV, 13) a strange vehicle used for producing rain. For there is no end to the odd information which coins provide.

For those who are interested in the diffusion of design I can commend the passage with which Mr Seltman concludes his excellent account of the coinage of Philip of Macedon: 'That,' he says, 'is the strange tale of how the beautiful 5th-century head of Apollo, created when Olynthus broke away from the Athenian Empire, ended up in 1st-century Yorkshire as a blob'.
STANLEY CASSON.

MAN AND METALS: a History of Mining in relation to the Development of Civilization. By T. A. RICKARD. *McGraw-Hill Publishing Co.*, 1932. *Two volumes, pp. 1068, illustrated. 50s.*

This work, long expected, has come to us in a somewhat unexpected form. We had looked for a technical history of early mining and metallurgy, of which four instalments had already appeared between 1926 and 1930 in the shape of papers read before various learned Societies. Mr Rickard's preface, however, places the work in a new light. Its genesis is to be found in Wells' *Outline of History*, which in Mr Rickard's opinion paid insufficient regard to the rôle of the metals in the development of civilization. Thus *Man and Metals* is partly historical—containing summarized accounts of periods in human history ranging from the early Stone Age to disquisitions on mining law and mining adventure in Mexico, California, Australia and South Africa. On these chapters, interestingly written as they are, we do not propose to touch. Each has been submitted to a group of experts for criticism and is furnished with a full bibliographical appendix. The statements also in the text are connected by numerical references with their respective sources.

Nevertheless the substantial value of this work rests upon Mr Rickard's handling of the data relating to the history of early mining and metallurgy. For this portion of his work we have little but praise to offer. The chapters, for instance, on 'The Early Use of the Metals', and 'The First Use of Iron' could hardly be improved upon. In the former chapter, it is true, the early use of gold is somewhat summarily treated. Mr Rickard's views are not expressly stated—but he appears to hold that the metal when first discovered was not greatly esteemed and contributed little to the early development of civilization. 'The use of native copper', he says on p. 108, 'marks the beginning of every ancient metal culture'. Native copper continued to be used for fully two millenniums before the art of smelting the metal from its ore was found out. 'The age of metals did not begin until man discovered that he could fashion them by aid of fire' (p. 113). For this discovery Mr Rickard is content to accept the 'Camp Fire' theory, with the proviso that the accident of the reduction of the ore into metallic globules must have recurred with sufficient frequency to have established in the minds of the natives

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that the application of heat to the ore always resulted in the appearance of the metal. Here, we think, Mr Rickard is on right lines; but when he attempts to refute (pp. 144 and 859), the assertion of Dr Percy that the extraction of malleable iron is of all metallurgical processes the most simple, it is clear that the two authorities are not really opposed—for Dr Percy, no doubt, assumed that when iron was first successfully smelted charcoal was used, whereas Mr Rickard's contention is that malleable iron could not have been made in the camp fire. Unfortunately our knowledge of the various fuels used by different races in the production of pottery, glazes, glass and the metals is imperfect. The subject appears to have been somewhat neglected by archaeologists. In Asia and in Egypt, however, painted pottery, glazes and glass had been made, prior to the discovery of iron-smelting, in kilns or furnaces with the aid of dried rushes, straw, brushwood or billets of dried wood. In 1925 Sir Flinders Petrie told the Newcomen Society that in Egypt at a very early date the blue glaze (a silicate of lime and copper) was made in closed saggars in sunken furnaces at a constant temperature of $c. 860^{\circ} \text{C}$, maintained for 24 hours with the use probably of straw fuel only. This argues a high degree of technical knowledge in temperature control which was peculiar to Egypt.

It would be difficult to state positively when the discovery of the artificial production of charcoal was made or for what purpose. Quiquerez in his *L'Age du Fer* suggests that it was found out in smothering the camp fire with turves, and he points to a site of charcoal burning in the Jura to which a speculative date of $c. 2000 \text{ B.C.}$ may be assigned. It may, therefore, be inferred that charcoal-burning was known several centuries before the discovery of iron-smelting. As Mr Rickard points out, the reducing flame of charcoal was an essential element in the early production of malleable iron.

Over subsequent chapters, mainly historical, but often containing much sound metallurgical information, we must pass rapidly. The one on the Cassiterides, written in 1926, has to a large extent been superseded by Mr Hencken's chapter on the prehistoric tin trade in his *Archaeology of Cornwall and Scilly*, 1932. The chapter on the Athenians and their silver mines is a useful one, as the authorities for it are mostly French and not easily accessible. Mr Rickard, moreover, writes from personal acquaintance with the Laurium mining district.

A few omissions and errors may be mentioned—perhaps the most notable being the omission of any account of the copper finds in Susa 1, the capital city of Elam $c. 5000 \text{ B.C.}$, and of the Solubba, the despised tinkers of Syria and Arabia. For the latter Mr Rickard should consult Doughty's *Travels in Arabia Deserta*, pp. 280-4. 'Mining in Medieval Times' deals with the non-ferrous metals with illustrations from Agricola. The history of iron already dealt with in 'The Early Use of Metals' is resumed in two chapters—'The First Use of Iron', already referred to, and 'Iron in Human Industry'. There is a good deal of unnecessary repetition between the first two chapters. The account of iron mining in the Forest of Dean is inadequate, the writer not having consulted Miss M. L. Bazeley's paper in the *Trans. Bristol and Gloucestershire Archaeol. Society*, xxxiii, 153-286. Mr Rickard has relied upon Nicholls, who is an untrustworthy authority for the medieval period. The 72 forges for instance, quoted by him (p. 879) from Nicholls are obtained by adding together two lists of past and present tenants respectively. For the Sussex Iron Industry Straker's *Wealden Iron*, 1931, should not have been overlooked.

The only notice of the manufacture of cast iron in the classical era (p. 886) relates to the Warrington piece found by T. May in 1904. Mr Rickard will be glad of a reference to a report on the Romano-British settlement near Tiddington published by the Stratford-

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upon-Avon Corporation in 1931, where the subject is more fully discussed (pp. 17-18). It is clear that the Roman metallurgists could produce cast iron and were acquainted with its properties, but its utilization presented many difficulties which were not overcome for close upon 1000 years later.

Mr Rickard's work has impressed us as being one of unusual value. His chapters are clearly written and the work is well printed, but the volumes are too heavy for convenient handling.

E. WYNDHAM HULME.

EARLY CIVILIZATION IN THESSALY. By HAZEL D. HANSEN. Johns Hopkins University Studies in Archaeology, no. 15. Baltimore, 1933. pp. 203, 85 illustrations, 4 maps. 25s.

This concise and convenient study will be most useful. Miss Hansen has done an exceedingly difficult piece of work with great skill. The pre-war researches in Thessaly which laid the foundations of its prehistory are here correlated with the great bulk of Balkan and Central European research that has taken place since. She shows how Thessaly has drawn its influences now from this and now from that direction, and illustrates the course of its cultural development by a close and scholarly analysis of its ceramic.

In the first five chapters she summarizes the evidence for each successive period, fully illustrating it by well chosen plates to show the ceramic, architecture and crafts. In the sixth chapter she attempts to solve the various knotty problems that have developed during the examination of the evidence. The origin of the neolithic culture of Thessaly, with its very high standard painted ceramic, she attributes to a region outside Thessaly, for the earliest wares of Thessaly itself presupposes a long previous development. She rejects Frankfort's Danubian origins and agrees with Professor Childe that Thessaly and the Danube cultures are but two phases of a unified culture which came 'from some unknown point in the east, extending from Anatolia to Leukas during the third millennium B.C.' This explains both the Danubian similarities and the general non-Danubian character of Thessalian wares. But she will accept some direct contacts with the north as well which serve to intensify the Danubian elements. Her analysis of the Dimeni period is as sound a study of this strange interlude as could be desired. She carefully outlines its connexions with Transylvania, Thrace and Bulgaria and shows how all the different branches shared the same characteristics of porched houses, defence walls—the first walled cities in fact—suspended figurines and shoe-last celts. She also makes the important point that differences in local clay caused differences in shape and fabric, a fact all too often overlooked by students who find such differences hard to explain. She summarizes the effect of the Dimeni folk upon prehistoric Greek culture by saying aptly 'they came quietly into Greece and as quietly passed out of existence' but they left 'a lasting impression upon the culture of the Aegean and disturbed the whole region from the Dnieper to the Spercheius'.

Later, she shows how Macedonia sent influences in the Bronze Age down to Thessaly and next came under the all-conquering Minyan control, probably also derived from the north. Then comes the Iron Age with its great Thessalian concentration, preceded by a lively northward thrust of Mycenaean influence that planted tholos tombs in many parts, and gave to the Iron Age inhabitants a tomb-type which they retained for a long period.

This eminently readable book is a solid contribution to our knowledge of northern Greek prehistory. It is the result of research on the spot supplemented by wide reading of pertinent publications.

STANLEY CASSON.

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THE ANTIQUITY OF THE GREEK ALPHABET. By RHYS CARPENTER. *American Journal of Archaeology*, January-March 1933, XXXVII (1), 8-29.

Professor Rhys Carpenter says he has for some time past 'been expecting to encounter in learned journal or epigraphical treatise the authoritative pronouncement that the Greek alphabet was adopted from the Phœnician about the year 700 B.C.' He has been led to this revolutionary view by the accumulated evidence derived from classical and Semitic sources which 'is so thoroughly consistent and emphatic that no other inference is any longer permissible'. The orthodox view would put the date about 200 years earlier.

We are not qualified to review Professor Carpenter's thesis, and we have not the space to summarize it. It must suffice to draw attention to one very important conclusion which must follow if his theory is accepted, namely that the Homeric epics were orally transmitted for at least 500 years and probably longer. 'Ancient tradition asserted that [they were written down] in Athens under Pisistratus about 560 B.C. . . . Whether they like it or not, literary scholars must henceforth resign themselves to the archaeological fact that if the Homeric poems were composed before the year 700 B.C., they were composed without the aid of writing. The material civilization and intellectual endowment of 9th (and even 8th) century Greece have been vastly overestimated. Why should we persist in believing that a people who were demonstrably devoid of monumental architecture, sculpture, painting, and most of the minor arts, must nevertheless have been literate—especially when the evidence is overwhelming that they were not?'

It will give us some idea of the implications of Professor Carpenter's challenge if we make a historical analogy:—if transferred to Western Europe and the Saxon Epic of Beowulf it would imply that this poem, relating to events of round about A.D. 400 was not set down in writing until after the Norman Conquest. Oral transmission is not necessarily inexact or unreliable, but modifications are bound to occur during such a long period, and the historical value of 'Homer' is bound to depreciate if Professor Carpenter's theory finds general acceptance.

O.G.S.C.

IRANISCHE DENKMAELER, herausgegeben von ERNST HERZFELD. Reihe 1: Vorgeschichtliche Denkmaeler; Steinzeitlicher Hügel bei Persepolis. Lieferung 1: pp. 1-12, pls. I-XVIII; Lieferung 2: pp. 13-18, pls. XIX-XXX. Berlin: Dietrich Reimer-Ernst Vohsen Verlag, 1932. Each part 18 RM.

It is a remarkable fact that each new increase of our material adds evidence for the cohesion and essential homogeneity of the chalcolithic Iranian Highland culture, while the extreme variety of its best known product, the painted pottery, testifies to its vitality in the early stages. The pottery from Persepolis has as much a character of its own as that from the other Iranian sites, but its motives supply numerous links with Susa or Mohammedabad, Samarra or the sites explored by Sir Aurel Stein in Baluchistan. The position is exactly similar to that observed by Wace and Thompson in prehistoric Thessaly, where the painted pottery of the A-period is a clearly homogeneous product, while it is yet possible to distinguish the local schools' individual variations on the common theme to such an extent that within one layer at one site importations from contemporaneous neighbouring sites can be recognized.

The question naturally arises whether we can distinguish successive phases in the development of such a cultural province. Since the notion 'Susa II' has been proved to be entirely fictitious, we have to resign ourselves for the moment to the absence of the

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direct evidence of superimposed remains in Iran. An imported vase from Susa found at Ur, another vase found at Susa and containing Early Dynastic (*i.e.* definitely pre-Sargonic) Mesopotamian seal-cylinders illustrate a late stage of the Iranian Highland pottery; for a relative chronology of the earlier stages we are exclusively dependent upon one single criterion—that of style. This criterion need not be subjective but it requires elaborate treatment and careful detailed comparisons to produce objective results.

In the few paragraphs which Herzfeld devotes to this aspect of his discoveries assurance and assertion take the place of arguments. Fortunately the figures on his plates show unambiguously that the pottery from Persepolis belongs [with that of Susa I, Tepe Khazineh and Samarra] amongst the earliest wares which we happen to know from the Iranian Highlands. While it is impossible to argue here this statement in detail, we may refer to the survival of animal designs at these four sites which, as we know, tends to disappear in the progressive geometrization to which their ceramic decoration is subject. The pot-forms of Persepolis, showing as little differentiation of the structurally important parts as those from Susa, and much less than those from Samarra or Al'Ubaid, confirms this statement. Whether we can go further, and establish the relative chronology of the wares of the three sites mentioned instead of merely stating their approximate contemporaneity, seems doubtful to the reviewer. For the speed with which the disintegration of design and the evolution of pot-forms take place, is strongly influenced by the artistic forces at work in the various centres.

Herzfeld asserts that there is an external argument in favour of precedence in time of Persepolis. He dubs the settlement which he discovered 'neolithic'. But the very homogeneity of the Iranian Highland Culture, which everywhere else appears in possession of copper, must make us loth to accept such a statement without very good reason. Let us remember that M. Dunand reported at the Congress held in London during last August, how the chalcolithic necropolis of well over 200 graves which he investigated at Byblos appeared first of all to him to be neolithic, and that only in the 54th grave which he cleared there appeared some well-developed copper daggers, which have now found their counterparts in a few other graves of the necropolis. And, indeed, far from finding good reasons to call Persepolis neolithic Herzfeld states that a thin wristlet of copper foil was found and also a thin triangular dagger blade. If we remember the tremendous changes which the introduction of copper brought about, there seems not to be the slightest ground for putting Susa I on the one side of the division-line and Persepolis on the other.

As to remains other than pottery, there were found numerous flint tools, but no obsidian, no rock crystal and no lapis lazuli. Furthermore, clay sickles and clay cones with bent ends, also painted clay figurines of a goat and a bull and pierced sherds of painted pottery for use as ornaments and furthermore some alabaster vases and a high conical vase of black stone, all of which features find their counterparts at Susa I and in the Mesopotamian layers which are related with Susa I.

The publication is beautifully, even lavishly, produced.

H. FRANKFORT.

SEE FOR YOURSELF; a field-book of sight-seeing. By EDMUND VALE; drawings by RUTH VALE (Hutch). London and Toronto: J. M. Dent, 1933. pp. 288. 5s.

This is a pleasant and original book. It is quite well written, and is eminently readable, the numerous 'red herrings' contributing to its readableness rather than otherwise. The author speaks from a wide range of first-hand experience (which palliates much), and his reading has been well chosen. Much of the earlier portion is

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obviously based upon articles published in *ANTIQUITY* (as he gracefully acknowledges on p. 19). It is refreshing to find one who realizes that the modern archaeologist is the friend, not the haughty foe, of the sightseer. The book is intended for hikers and such like, but even the expert will find bits of it useful; the prehistorian mainly in the medieval part and the medievalist in the prehistoric part. We venture to recommend one of our own productions as likely to provide facts for another edition, namely, 'Field Archaeology' (H.M. Stationery Office, 1933, 6d). The one serious shortcoming is the omission of a select list of books on each subject, for wet days.

The shortcomings, though rather numerous, are fewer than usual in books of this kind, and are mostly concerned with points of detail. Dubois is a Dutchman, not a Swede (p. 23). Artifacts have now been found associated with the remains of *Sinanthropus* (p. 24; see *ANTIQUITY*, vi, 508). 'Eoliths' are by no means generally accepted. The bad, but recognizable, drawing on p. 24 seems to be rather an 'eolith' than a 'rostracarinat', as it is called on p. 218; but 'rostracarinates' are also, in the opinion of many experts, of purely natural origin. Palaeolithic art began in the Aurignacian, not the Magdalenian, period (p. 25). The suggested *raison d'être* of Stonehenge and Woodhenge (pp. 34 ff) is one of the best we have come across; but their sepulchral associations also must not be overlooked. The beaker-folk buried their dead; they did not cremate them; cinerary urns are later, and belong to the middle Bronze Age. The paragraph is confused, and needs rewriting (p. 40). Old Burrow is a Roman signal-station, and had already been excavated (though not recognized) when Allcroft's account was written (pp. 43, 44). C. Hawkes is correct (p. 45); the singular form (elsewhere) is wrong. Roman villas (p. 39); I sympathize, but mosaic pavements are a draw, and have their uses, as some excavators know well. There are remains of a Norman house at Southampton, but they are very little known. 'Dolmen' has been expunged from the vocabulary of the best archaeologists, and replaced by 'burial-chamber'. It is a fake-word. 'Burial-chambers' are *certainly* sepulchral (p. 207). *Allles couvertes* are passages leading to burial-chambers and are quite distinct from alignments (p. 208). Hut-circles and beehive huts are not necessarily the remains of identical objects. 'Broch' is not synonymous with fort and the words quoted; brochs were a very special form of dwelling (p. 210; see *ANTIQUITY* i, 290-8). There are very many ordinary hill-forts in Scotland (see Christison, *Early Fortifications in Scotland*, Blackwood, 1898).

More space should be given to lynchets, and the differences between the Celtic and Saxon systems of cultivation explained; lynchets are very common objects of the countryside, and puzzle most sightseers. Apart from articles in *ANTIQUITY* by Dr Curwen, the latter's account of lynchets in the Report of the thirty-ninth Congress of the Research Committee for 1931 (Soc. of Antiquaries, Burlington House) is recommended for study before the next edition is issued.

We cannot commend the illustrations. The courtship of caterpillars on p. 57 is cartographically obscene, and so is the plan on p. 211.

O.G.S.C.

TELL HALAF: a new culture in oldest Mesopotamia. By Dr BARON MAX VON OPPENHEIM. Translated from the German by GERALD WHEELER. G.P. Putnam's Sons, 1933. pp. xvi, 337, 64 plates in half tone, 4 plates in colour, text figures and maps. 21s.

This is the English translation of a book already reviewed in *ANTIQUITY*,* and is substantially the same as the German edition of 1931. Perhaps the most important

* Vol. vi, 246-7.

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development since the original publication, with regard to the archaeology of the Near East, is the fact that pottery similar to the earliest painted ware of Tell Halaf is stratified at Nineveh, a hundred miles eastward, being the earliest ware of that site. It should, perhaps, be added that as soon as the Bronze Age begins, there appears to be no parallel between the two sites until the Assyrian period.

Tell Halaf is a site of very great importance, and though its civilizations cannot readily be linked with others elsewhere as yet, it is all the more interesting as displaying cultures of which nothing was known heretofore. In this book, which is not a technical report, Baron von Oppenheim has written, in a charmingly lucid way, a clear and straightforward account of his work and his discoveries. The book, moreover, contains valuable appendices by Hubert Schmidt, Herzfeld and others, on the pottery, sculpture and other technical points. It is translated remarkably well.

The full report of the excavation is promised in the near future, and will be of the greatest value to archaeologists. Meanwhile, this book, with its many illustrations, some being coloured, is most useful to experts, as well as being extremely interesting and instructive to everyone, however inexpert, who is curious about the life of men in early days in the Near East. Probably no one man has done more to advance our knowledge of the early civilizations of Western Asia, since Schliemann, than Baron von Oppenheim, whose courage, industry and enthusiasm alike deserve our highest praise.

THEODORE BURTON BROWN.

LES ORIGINES DE LA SOCIÉTÉ, vol. 1. pp. 45-58. Sociologie préhistorique—
Âge de la pierre. By L'ABBÉ BREUIL. *La renaissance du livre*, 78 Boulevard Saint
Michel, Paris, 1932. 15 francs.

Even the lighter works of one who is armed with such a wealth of first-hand knowledge as the Abbé Breuil are worth close attention. When, as here, that knowledge is directed into sociological channels, we become particularly attentive. Nor are we disappointed in the quality, but only in the quantity, of what we are given. The material with any claims to be called 'sociological' is, in the Abbé's own period, so scanty that two pages suffices, for example, to enumerate the bare facts of this order recorded for the whole of the Lower Palaeolithic period (Sinanthropus to Mousterian). Nevertheless it is just this catalogue which is so useful. So far as I know it is the first time that such a selection has been actually made.

During the Mousterian period Neanderthal man buried his dead in caves; and there are slight suggestions of what may have been magical practices. Ceremonial burial is relatively common during the Upper Palaeolithic, and it is interesting to note a hut-burial at Solutré. The burial of the dead in the abodes of the living (whether huts or caves) has therefore archaeological evidence to support it, and may be cited by those who maintain (on typological grounds) that megalithic burial-chambers and rock-cut tombs are a later stylized or specialized development of this custom.

There follows a brief narration of the chief culture-areas of the Upper Palaeolithic, and of the art of the caverns. The Abbé concludes that the dark recesses of the caves where such wall-paintings occur (sometimes more than a kilometre from daylight) 'were the scene of ceremonial rites concerned with the increase of desirable animals, the successful achievement of hunting expeditions and the destruction, by magic, of dangerous animals'.

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It is a relief to find sociology brought down to earth at last ; and if the fare is scanty it is at least solid and edible so far as it goes. Only by historical methods, such as those here employed, can we achieve any real advance in our knowledge of the *actual* evolution of human society. The rest is mere theorizing. O.G.S.C.

ETNOLOGIA DE LA PENINSULA IBÉRICA. By DR P. BOSCH-GIMPERA. *Barcelona : Editorial Alpha, 1932. pp. xxiv, 711, with 542 illustrations and maps. Price not stated.*

On taking up this book, one cannot help but feel that Spain has found its Déchelette. Like Déchelette, Dr Bosch-Gimpera is a scholar with an extremely wide background. His early training in Germany, his intimate knowledge of the different European archaeological literatures and his unrivalled mastery of the archaeology, not only of his own country, but of the whole Iberian peninsula, single him out as the ideal man to undertake a work of such scope.

To English readers, apart from the chapter on 'External Relations prior to the Phoenicians', chapters XVIII-XXI, on the Celtic elements in the population, are of special interest. According to the author these fall into two groups : (a) the Urnfield population of northeast Spain ; (b) the peoples of the Late and Post-Hallstatt culture, best represented in the west of the peninsula and in east Castile. Some think the latter were in touch with southwest Britain, while the former, though indirectly, is probably also connected with this country. The *Eimerurnen* from the Catalanian Urnfield of Punta del Pi (fig. 421, *d* and *e*) are surely of Rhenish origin (cf. *Prähist. Zeitschr.* 1919-1920, p. 143), while fig. 421 *e* is probably connected with certain British pail-shaped urns (cf. Scarborough, *Archaeologia*, LXXVII, 187). This would indicate that Urnfield movements to northeast Spain and to Britain came from a more or less common centre : the Rhine (cf. too *Prähist. Zeitschr.* 1930, pp. 160ff). The problem is, however, of greater complexity than it at first appears, for the northeast Spanish Urnfield culture is of a mixed character, comprising Rhenish, West Alpine, and other elements. Yet one cannot but feel that the emphasis laid by some on the west-Alpine traits in that culture has tended to eclipse a not unimportant Rhenish element.

It is true also that this late Bronze Age (Hallstatt A and B) culture of the west-Alpine area affected Britain as well as northeast Spain—but how differently ! Its influence on Britain is chiefly to be seen in the metal objects and in a few pile-dwelling sites. Yet in northeast Spain it is represented by the ornamentation on some of the pottery and by certain ceramic forms (types up to the present lacking in Britain) ; metal objects are unknown—not even represented by isolated finds. In Spain, strangely enough, the area of distribution of the carp-tongue sword, a feature thought to be west-Alpine in origin, does not coincide with that of the Urnfield culture.

Unfortunately the Rhenish *Eimerurnen* (which occur in the Lower as well as the Middle and Upper Rhenish areas) are long-lived types and therefore do not yield very precise chronological data.

It is interesting to see that Dr Bosch-Gimpera has lowered the upper date of the northeast Spanish Urnfield period. In Mannus, *Ergänzungsband*, VI (p. 270), he and Doctor Kraft placed the Urnfield invasion of that region during the 12th or 11th century B.C. In Switzerland and southwest Germany it is difficult to fix the upper limit of Hallstatt A as high as 1200 B.C.—far more so in Spain. Although in the central- and east-Alpine areas there are certain indications that Hallstatt A overlapped with the

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proto-Villanovan phase in Italy, there is little evidence for believing that Hallstatt A in Switzerland and southwest Germany began prior to Benacci 1. Moreover the Urnfield period (Hallstatt A) must have begun later in these more westerly regions than it did further to the east, seeing that it was from the latter area that the Urnfield civilization expanded into Switzerland and southwest Germany. In view of this, Dr Bosch-Gimpera's new dating (c. 1000 B.C.) for the upper limit of the Spanish Urnfields seems more satisfactory.

This review should not close without a word of tribute to the publishers for their part in the production of so noble a volume. As a survey it will remain for many years the classical work on the subject—at all events until Dr Bosch-Gimpera elects to supersede it with a fresh book on the same theme!

J. M. DE NAVARRO.

THE LATEST ARCHAEOLOGICAL DISCOVERIES IN ITALY. By FRANCESCO PELLATI. English edition, translated by P.R.M. Printed for the *Ente Nazionale Industrie Turistiche, Ferrovie dello Stato*, by Treves-Treccani-Tumminelli, Milano-Roma, 1932. pp. 111 and 129 illustrations. Price not stated.

The purpose of this frankly popular work is to inveigle the public interested in classical antiquities to Italy, by indicating how many remains have been uncovered or restored in recent years. The illustrations alone are enough to tempt anyone, and they are accompanied by a text which was not only lively in its original Italian, but full of interesting detail accurately and simply stated. We are sorry to say that much of the technical detail has been murdered by the translator, and that the text was well bedevilled at the printers. Readers who know some Italian would be well advised to secure a copy of Count Pellati's original text, while others must hope that a second edition will do that text justice. The author is an excellent popularizer and realizes the two essential points, that the English visitor admires the ancient Roman most of all for his technical ability and welcomes technical facts simply stated with the aid of good detailed pictures. Most of the pictures given are astonishingly good, and, in view of future developments in this regard we would say that the type which is particularly attractive is that of the bridge above Finalpia, the gate at Ascoli Piceno, the Vesta-temple and Hadrianum at Rome, the Tivoli tomb, the Nuraghe Losa, Lindos, and the very exquisite view of Hera's temple rising above the peach-orchards of Agrigento. The sort that is worthless is Comacchio, the Tomb of Augustus and the Roman cemetery at Taranto, for the tourist likes neither mud, darkness nor hot sun and wind. As the work was compiled in 1932, the Rome photographs of the Market of Trajan and the Forum of Augustus are quite out of date, while the Forum of Caesar and the house at S. Rita were worth inclusion.

Criticism of the original text, ignoring the translation, is difficult because the work is ephemeral. But new discoveries need definition, as at Grotta Costantini and Massa Marittima; the Dora Riparia and Dora Baltea are not distinguished; Marzabotto is not a recent excavation and not worth a visit now; the *murus latericius* at Arezzo is not famous, except to specialists in Vitruvius, who are, alas! too few, even in Italy; the account of the temples in the Largo Argentina is weak; the Pantheon dating is odd; and the account of the Servian Wall now needs revision. But what is surprising is how much thoroughly sound information Count Pellati has contrived simply to convey, and how much gets through despite the defects peculiar to the English edition.

I. A. RICHMOND.

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CARAVAN CITIES. By M. ROSTOVITZ. Translated by D. and T. TALBOT RICE. Oxford: Clarendon Press, 1932. pp. viii, 226 with 35 illustrations, 6 figures in text, 5 maps and plans. 15s.

The Caravan Cities, which form the subject matter of this volume, are the ephemeral commercial centres brought into being by the booming caravan traffic between east and west during the two or three centuries before Christ and the first and second of our era. Although this book is little more than a sketch—an outline for a more detailed work which must inevitably follow, as our knowledge of the bridge between Europe, Asia and Africa increases—yet it comes at an opportune moment, for the region is pregnant with archaeological interest, and its re-discovery goes on apace.

The scene is laid on the eastern confines of the Roman Empire, and the principal parts are played by Petra, Jerash, Palmyra and Dura, and great parts too they created in the dramatic story of commercial intercourse between the Levant and the Indian Seas.

The author gives a graphic account of the origin and development of caravan trade from the earliest times in the Near East, and draws our attention more especially to the condition of this region during those centuries which first produced, and finally destroyed these curious mushroom cities. The chapter devoted to Petra shows the famous rock-hewn emporium in its character as the principle centre of Nabataean culture, and shows also that its rise and fall covered no great length of time, yet its name endureth for ever. The interest of Jerash, on the other hand, lies principally in its Roman or Hellenized Roman period, at times a busy trading centre, at others a military outpost. The author gives a general description of Jerash at the time of its greatest prosperity—the 1st and 2nd centuries A.D. No sufficient light has yet been thrown on the difficult problem of what it was before, or what befell it after, that time.

Palmyra, most independent, richest, and strongest of all these commercial outposts, stood in mid-desert, the port of call for caravan traffic over a vast area. Its position was unique, its career vivid and romantic, while its remains still stir the imagination as few ruined sites do. But it is to Dura and to the communications between Palmyra and Dura that the author devotes most of his attention, and wisely so, for Dura is of comparative recent discovery, and its excavation a quite recent achievement.

Dura, situated on the left bank of the Euphrates, 150 miles due east of Palmyra, was first of all a Seleucid and later a Parthian outpost, but as Palmyra grew in importance so Dura rose to eminence, until her status grew to that of a Caravan City. Here we are given a picture, by word and illustration, of its ruined temples, palaces and fortifications, also of its frescoes and graffiti so illustrative of its character as a half-way house between east and west, perhaps the most typical Caravan City of them all.

DOUGLAS CARRUTHERS.

THE STONE AGE CULTURES OF SOUTH AFRICA. By A. J. GOODWIN and C. VAN RIET LOWE. (Annals of the South African Museum, vol. XXVII). The Trustees of the South African Museum, 1929. pp. 289, 4 text-figures and 45 plates. 25s.

Before the war the authorities on South African prehistory were J. P. Johnson and Dr Péringuey; the latter's work was certainly exhaustive, but very complicated and difficult to use. But the post-war years have seen an enormous development of research into the prehistory of South Africa as of other countries, and a wealth of new material is now available. A first glimpse of this was given us by Mr Burkiitt in his *South Africa's*

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past in stone and paint,¹ and now we have before us a detailed account of the Stone Age material in South Africa, mainly by Mr Goodwin, while Mr van Riet Lowe is principally responsible for the pages on the Smithfield culture; some parts of the book have been jointly written. The first chapter, by way of introduction, is devoted to the general geographical and archaeological conditions of the country; chapters 2-4 treat of the *coup de poing* industries, which correspond typologically to the lower Palaeolithic Age in Europe (Stellenbosch, Victoria West and Fauresmith); chapter 5 deals with the 'middle' Stone Age, morphologically similar partly to the Mousterian, partly to the Aurignacian and Solutrean. Chapters 6-10 give an account of the industries of an Upper Palaeolithic type (Smithfield, Wilton), and the concluding chapter is concerned with the South African neolithic survivals.

Our chief difficulty in forming conclusions on the Stone Age of South Africa consists in the lack of thoroughly excavated sites: no certain chronology can be established without stratigraphic evidence. For this reason very different opinions are possible concerning the chronological position and history of the South African Stone Age cultures. It is fairly certain that the *coup de poing* cultures, with their lower Palaeolithic appearance, set in no later than that period did in Europe: but it is a matter for doubt whether they did not last much longer in South Africa than with us. The most widely diverging theories are those concerning the South African 'middle' Stone Age: Goodwin would see in the Glengrey culture a Mousterian type, a theory which is typologically possible but chronologically less easy to accept. The special type of facet related to it (Still Bay, Pietersburg) must, in my opinion, be ascribed to nothing earlier than a late period of the Upper Palaeolithic Age. Further, Goodwin's attempt to divide the Smithfield culture from the local Mousterian strikes me as very bold. Its relationships with the Neolithic Age of North Africa are in any case much clearer. Many other such criticisms could be made, but they do not in the least impair the worth of the book. For in the circumstances the authors cannot lay claim to establish definite conclusions; their work is essentially that of pioneers, and a basis for scientific research, a purpose which it amply fulfils.

O. MENGHIN.²

OUR PREHISTORIC ANCESTORS. By Professor H. F. CLELAND. *Williams and Norgate*. pp. 379, 154 figs. and 5 colour plates. 21s.

The purpose of this book has been 'to describe as briefly as clarity will permit the events in man's prehistory which have been of greatest significance in his progress toward civilization'. There is room for a book soaring clear of that jungle of technicalities in which the big game of archaeology engage in internecine conflict, and stressing for the general reader the essential achievements of humanity, the landmarks of universal history or more concisely of cultural development. Unfortunately this book does not fill the gap. For the specialist it will be dismissed as a scissors and paste affair in which the joints are rather obvious, while it appears to have few qualities likely to arouse the general reader. The figures are numerous but not altogether adequate, and two of the colour plates (frontispiece and plate III) are painful. The book does not interest, still less inspire, because the author does not seem to have got a vital grip of his subject. To

¹ Reviewed *ANTIQUITY*, 1929, III, 371.

² Translated from the German by Roland G. Austin, University of Glasgow.

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be a success such a book must be written by an expert who happens to have the gift of writing. Flagrant inaccuracies are rare in this book, though we must protest that Chun Castle is not the best example of a dolmen! One is irritated rather by the general lack of grip. Thus we find in the glossary (p. 364): '*Levallois Flake*. The Levallois flake was made from a flake struck off a nodule. Its importance lies in the fact that in Acheulean times a new technique, which was later to be so important, was evolved'. From this we not only learn nothing of the character of the Levallois flake other than that it is a flake, but we are also made to suspect rightly or wrongly, that if Professor Cleland were asked to draw a Levallois flake he would fail miserably. Or again, quoting from p. 229: 'we . . . find that the Bronze Age pottery of Great Britain and Ireland is little better than that of the Neolithic, notwithstanding the long duration of the Bronze Age'. As a matter of fact most of it is a great deal worse and there are plenty of sound reasons why. The flabby 'progress' predisposition becomes manifest in many other places, e.g. p. 240: 'The art of the Bronze Age in Western Europe is little in advance of that of the Neolithic'. Much of the information repeated from the standard textbooks is inconsequential much in the same way as the 'history' parodied in '1066 and All That'.

J.G.D.C.

THE ANNUAL OF THE AMERICAN SCHOOLS OF ORIENTAL RESEARCH.
Vol. XI, for 1929-30. *Edited for the Trustees by HENRY J. CADBURY.* Yale University Press, 1931. pp. 169 with many illustrations. Price not stated.

The American Schools in question are those in Jerusalem and in Baghdad, and the present volume deals appropriately with archaeological matter both Palestinian and Babylonian. The latter is represented by a very learned article of 58 pages, on 'The Verb in the Kirkuk Tablets', by Samuel N. Kramer. The Palestinian matter consists of a well illustrated preliminary report on the first two campaigns of Yale University and the American Schools at Jerash. There is an article on 'A New Syriac Fragment' dealing with incidents in the second Crusade (1148-49), by W. R. Taylor of the University of Toronto; and an account of excavations at Jerash, by Professor Clarence S. Fisher.

For the general reader the most interesting communications are those relating to Jerash and the translation of the Syriac Fragment. As to Jerash, which is 20 miles east of Jordan and 23 north of Amman, it is well known that the excavations here are due to the initiative of Professor Bacon of Yale. They were begun in 1928 under the direction of Mr J. W. Crowfoot, and the present volume carries the account of the work to October 1931. There is a full description, with plan and photographs, of the Artemis temple, 'easily the most imposing as well as the most beautiful of the visible monuments of Jerash'. The singularly interesting churches at Jerash have already been described, with their remarkable mosaics, in a special publication of the British School of Archaeology in Jerusalem written by Mr Crowfoot, and issued in 1931.

C. F. CLOSE.

THE QUARTERLY OF THE DEPARTMENT OF ANTIQUITIES IN PALESTINE. *Published for the Government of Palestine by the Oxford University Press, London, 1932.* Vol. I, no. 4. Vol. II, no. 1. Each number 5s.

This admirably produced Quarterly contains much material which is indispensable to the student of Palestinian archaeology. In the first of the above issues is an account of some mosaic pavements at 'Ein el Fawwār, covering the floors of a ruined chapel and its adjuncts, close to the outflow of an intermittent spring, used to supplement the water

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supply of Jerusalem. There is an illustrated description of a portrait of Vitellius in rock crystal from Caesarea; and an account of an inscribed Greek epitaph discovered at Gaza, the stone having been used for a modern tomb. A list is given of the excavations in 1931 at ten sites, including Beth-Shan, 'Ain Shems, Samaria, Tell el Ajjûl, Megiddo and the prehistoric caves of the Wādī el Maghāra. The valuable concise bibliography of excavations in Palestine is continued; this section deals principally with Jerusalem, includes many hundreds of entries, and is accompanied by a useful index-map of the Holy City and the neighbourhood.

The system of transliteration of Palestinian place-names presents some unfamiliar forms: thus, 'Ain Shems appears as 'Ein Shams, and Tell el Ajjûl as Tall el 'Ujûl.

Volume II begins with an excellent number which contains articles on Egypto-Arabian, Phoenician and other coins of the 4th century B.C.; 3rd century portrait busts; pre-Hellenistic Greek pottery in Palestine; two inscriptions of Baybars; the Tyropoeon Valley.

Mr J. H. Iliffe, in the course of his article on pre-Hellenistic pottery, remarks, 'The object of the present note—based on the Greek sherds in the Museum and an examination of several mounds—is to draw attention to the chronological range of the examples known, and the considerable number of good vases of 6th and 5th century date represented'. The last contribution, on street levels in the Tyropoeon Valley, gives an account of some minor discoveries that were made during 1931, while constructing a new sewer. We badly want a revised archaeological map of Jerusalem to enable these and other discoveries to be properly studied.

C. F. CLOSE.

THE KNIGHTS HOSPITALLERS IN THE HOLY LAND. By Col. E. J. KING.
C.M.G. *Methuen*, 1931. pp. xv, 336, 23 illus. and 13 maps and plans. 25s.

This is a work of piety happily begun. The author is Librarian of the British Order of St. John of Jerusalem. Conscious of its medieval heritage he has undertaken the task of writing a complete history of the original Order in the Holy Land, Rhodes and Malta, the first that has been attempted in English. The present volume deals with 'the heroic period', the 12th and 13th centuries in Palestine and Syria. For its internal history it has good authority: the exhaustive chartulary and critical monographs of a learned French historian of the Order, the late Joseph Delaville Leroulx. From this source Col. King has selected a number of illustrative documents for quotation in full. For the background, the general history of the Latin kingdom and of the Templars, he has drawn conscientiously upon standard works on the Crusades. He has also compiled a useful summary of the other Military Orders and their successors. To the seals of the Order he devotes another appendix, a preliminary to the valuable study which he has since published.* But apart from the Masters' seals and a rare form of reliquary which may have belonged to the conventual church in Jerusalem, his material is disappointing. The architectural illustrations are particularly meagre in spite of the fact that the Order left its mark upon the country by its hospices, churches and castles.

This lack of material is not altogether Col. King's fault. Very few Crusading monuments have escaped subsequent quarrying activities, and their vestiges are only now being studied at all thoroughly. To take the Hospital of Jerusalem, for example, the great pilgrim hospice of the 12th century which was maintained in much the same

* *The Seals of the Order of St. John of Jerusalem.* *Methuen*, 1932, 18s.

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spirit as the vast establishment of the Russian Palestine Society, as Stephen Graham described it in pre-war days ; this was spared by Saladin out of respect for the Hospitallers but it has not survived the building activities of later times. Only by assiduous study of every vestige which came to light during the rebuilding of Jerusalem at the end of the 19th century, was the German architect Conrad Schick able to recover the plan. It was evidently a massive Romanesque building of long vaulted aisles such as the ones which still survive at the bottom of David Street where the Jerusalem vegetable market is held, very near the place it occupied in the time of the Crusades. Within the area of the Hospital the crypt of the church still exists under what is once more the Orthodox Greek parish church. Some clue to its appearance is supplied by the surviving north door of a Benedictine church close by, now incorporated in the Lutheran Erlöserkirche. This belonged to one of the two Benedictine hospices, one for men, the other for women, which represented the parents from which the Hospital sprang. Col. King might have illustrated this beautiful doorway and should have cited de Vogüé's account of the whole area as he found it in the 'fifties (*Eglises de Terre Sainte*, 1860). Comparison might also have been made with the fine fortress church at Qariet al-'Enab or Abû Ghôsh on the Jaffa-Jerusalem road, which may be identified with the Commandery of Emmaus. Even less has survived of the convent in Acre which became the headquarters of the Order soon after Jerusalem fell. Down to the 18th century the Masters' palace and the conventual church both stood, the latter up to its triforium, so conspicuous a landmark that it gave its name to the port, St. Jean d'Acre. But French and British guns completed its ruin, energetically seconded by the zeal of the local pashas for up-to-date fortifications. The sole remnant consists of two aisles of the church, now buried under the Palestine central prison. With reference to Acre, the author should at least have referred to the posthumous work of Camille Enlart, *Les Monuments des Croisés dans le Royaume de Jérusalem*, Paris, 1928.

Of the castles which belonged to the Order only two, both in Syria, are at all well-preserved. Those held by the Order in the hill country of Palestine during the 12th century—between them the two great Orders eventually held all but three of the inland castles—were razed by Saladin when Richard threatened Jerusalem in 1191. Two or three of them would perhaps repay excavation with the object of completing their plan ; work which may be undertaken some day by the digging staff of the Palestine Archaeological Museum now engaged at Pilgrim's Castle, the 13th century stronghold of the Templars at Athlit. (This castle was commenced by Gautier d'Avesnes, not by Andrew as stated on p. 190). But in the Syrian country of Tripoli where the Order concentrated its resources after Palestine had been lost there are two of the finest examples of medieval fortification now extant, viz., Krak of the Knights (*Hism al-Akrâd*) and Markab (*Marghat*). Unlike contemporary examples in Europe they are almost unobstructed by secondary work. Both fell to Baybars with distressing ease but without vital damage, since he wished to preserve them for his own use. Col. King reproduces the plans made by Édouard Rey some fifty years ago, still the only ones available, although the Syrian Service des Antiquités is now actively engaged on a complete clearance and survey of Krak. Excellent photographs of both castles appeared in Max van Berchem's and Edmond Fatio's *Voyage en Syrie* (*Mémoires de l'Institut français de l'Archéologie Orientale du Caire*, 1914).

But antiquities apart, this is a thorough book, the only detailed treatment in English ; and it is good news that it is to be followed by another volume on the much less familiar history of the Order in Rhodes.

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BULLETIN D'ÉTUDES ORIENTALES. Institut français de Damas, année 1931.
Tome 1. Paris: Leroux. pp. 222. 100 francs.

The Bulletin contains seven articles which cover a wide sphere: philological, archaeological, topographical, geographical and purely literary subjects being represented. It is the first volume of a periodical which will appear annually.

In the first article, M. L. Massignon traces the history of Jewish banking from its infancy in 9th century Baghdad till its culmination in the main streets of London and New York today. A Jewish financial monopoly arose in the capital of the Caliphate purely and simply because Islamic law forbade Moslems to indulge in financial commerce and because such power in the hands of Christians would hardly be desirable in Moslem lands, with an ever present Byzantine empire on the frontier. As time went on the system was developed; large payments were effected by the modern method of credit letters and a separate Jewish banking class arose. In the 12th century Egypt and Spain replaced Baghdad as the main centres, but there were numerous branches and the Jews seem to have gradually come to live in special quarters of the various cities. In the 13th and 14th centuries their power leads to persecutions and they seek refuge in Christian cities, where they establish Jewish quarters which have retained the control of finance to the present day. It is thus to a great extent due to chance that the Jewish control of finance was first brought about.

Two new monuments from Syria,—the church of St. Elias at Ezra and the great church at Seqra, both of the 6th century—are published by M. J. Lassus. Both churches were apparently roofed with dome and vaults; both are of the same plan, namely cruciform. It is in this that their chief importance lies, for it is the basilica and the centralized buildings that have hitherto been regarded as typical of Syria in early Christian times. In the light of this new evidence, however, M. Lassus is able to show that there were quite a large number of buildings of cruciform plan in Syria in the 5th and 6th centuries and he thereby adds another link to the chain which binds developed Byzantine and Moslem architecture to Syria. Every building of the early period is important, for it is only by the accumulation of evidence that just decisions can be reached, and there has of late years been more dispute as to the origin of dome, vault and cruciform plan than there has over any other subject in archaeology or art history. There is every reason to believe, with M. Lassus, that the evolution of the cruciform plan was both slow and complicated and that its conception took place in pagan times; it may well have been arrived at in different ways in different regions. The article is illustrated by 6 plates and 14 figures in the text.

An Arabic translation of Bernardin de Saint Pierre's 'Paul et Virginie' is discussed by M. E. Saussey. Passages from either version placed side by side serve to show, not only that many of the French phrases are unrenderable in Arabic, but also that the translator, Manfaluti, had a scheme of his own which hardly coincided with that of the original, but which was far better suited to his Arabic public. Just as Fitzgerald's *Omar* is a masterpiece, though hardly Persian, so is Manfaluti's adaptation a fine work, though it can hardly be called a translation.

The well-known student of Palmyra, M. Cantineau, is concerned with the place of the word-accent in Hebrew and in Biblical Aramaean. His article shows that a detailed analysis of this nature may bring forth fruits which concern chronology as well as those which are of a purely philological nature.

The distribution of population in Damascus is dealt with by M. R. Thoumin, who shows how different quarters are occupied by different sects and how they have remained

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distinct from one another for many centuries. It should be of great interest to those who know Damascus.

M. J. Gaulmier describes the popular pilgrimages to Hama, which are, he shows, of a purely Moslem character and do not seem to carry on any pagan tradition, as is so often the case with regard to the reverence of sanctuaries.

A life of Sibli Sumayyil, metaphysician and moralist, is by Jean Lecerf. It is an important addition to the biography of a little known but important Arabic writer.

The Bulletin includes a summary of the activities of the members of the Institut français de Damas. It is well printed and produced, with good illustrations.

D. TALBOT RICE.

HESPERIA: Journal of the American School of Classical Studies at Athens. Volume I, 1932. *Harvard University Press. pp. 217, with plates and plans. 3 dollars.*

The American School at Athens has not hitherto published a journal of its own and most of the work done in Greece by the officials and students of the school has had to seek a place in the American Journal of Archaeology, which covers a wide range of archaeology and is limited in space.

This first volume contains four papers, of which two stand out as of first-rate importance. Prof. Rhys Carpenter, until recently Director of the School, here publishes the surprising results of his researches on the sculptures of the Parthenon. For he has discovered—if indeed discovery is the right term for finding lying about what nobody had noticed—a large part of one of the missing figures of the west pediment. This figure is that of a seated woman, of more than life size, which can without hesitation be identified with the figure shown in the drawings of the pediment made by Jacques Carrey in the 17th century and known as 'figure U'. A further comparison is made by Prof. Carpenter with the surviving miniature figure from Eleusis which belongs to a group copied more or less directly from the west pediment in Roman times. Here again the comparison is wholly convincing. Finally, Prof. Carpenter shows that the technique of the figure (and enough of its original surfaces survive for a sound technical study) corresponds with the technique of the Parthenon pedimental sculptures as a whole.

The figure so identified has been lying on the surface of the Acropolis for the last forty years and many scores of learned archaeologists have passed it, looked at it and passed on, assuming that it was too battered for consideration. Fortunately, methods of research in sculpture now make it advisable to pause even before the most uninviting fragment. And the paper here published shows how a major contribution can be made to the sculpture of a world-famous monument by the aid of careful observation and sound method.

Almost equally important is the paper by Mr Oscar Broneer on a sanctuary of Aphrodite on the north slope of the Acropolis. The author has found an inscription, not hitherto noticed, carved into the rock, recording the time at which the feast of Eros was held. The letters are those of the 5th century and the shrine which stood near has evidently some close connexion with the mysteries of the Arrhephoroi, the two maidens who served Athena annually on the Acropolis. It may indeed be that here was the shrine of 'Aphrodite in the Gardens' to which Pausanias refers in connexion with the Arrhephoroi.

Of the other papers that on the recent excavations and clearance of the Pnyx is of the greatest value, in that it settles finally the disputed structure and plan of the building and gives us four accurate surveys of the whole area.

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It will be difficult for every number of *HESPERIA* to keep up this high standard of discovery, and the first has clearly started with the advantage of being able to select from an accumulation of good material. But the journal, as a scientific publication, is all that could be hoped for and readers can be certain of finding good material in it if every number is so well produced and so well served by the students of the School.

STANLEY CASSON.

THE BIOLOGY OF CIVILISATION. By C. C. WALKER. *Toronto: Macmillan Company of Canada, 1930. pp. 323. 12s 6d.*

The author of this book does not appear to have read the works of Herbert Spencer. He states in his introduction, as if proposing a novelty, that 'the manner in which the study of man will be attempted in these pages is that of a zoologist who has an interesting specimen under his glass'. But on inspection it rather seems as if the author had inverted his telescope and taken a long view of history, seeing it as a series of small connected scenes from which all detail is removed by distance. And this is a very different thing. Indeed there seems little by which this book can be distinguished from a simple 'potted history of the world', except for the fact that the influence of individuals upon the currents of history is minimized and avoided. For it is a descriptive, not an analytic, work and it shows no trace of any original research whatever. The author makes no attempt to explain the collapse of the various civilizations of antiquity that he describes so fully, and gives no new suggestions for the emergence of new empires and new dominant powers. In his last chapter he considers 'War from a biological point of view'. But all that his consideration amounts to is that war is due to a passionate anxiety for 'security': countries are 'afraid of being afraid' and so provoke wars which will banish their fears for ever. That is not biology but psychology. Indeed the whole book is a not uninteresting sketch of all history with a few morals attached. There is little or no biology about it.

STANLEY CASSON.

ANTIQUES: their restoration and preservation. By A. LUCAS. *Edward Arnold, 1932. pp. 240. 8s 6d.*

The second edition (the first was published in 1924) of this handy book on the cleaning, restoration and preservation of antiques should be in the possession of everyone who has occasion to deal with such objects. The author has had the advantage of much practical experience and he has been able therefore to explain the various methods employed concisely and in simple terms.

The introduction should be read carefully and the warning as to the necessity of having a certain knowledge of chemistry and of its practical application duly noted. The treatment of objects of nearly every kind of material which the worker in the field or the curator in the museum is likely to handle is discussed. In the section devoted to the treatment of metals, 23 pages are given to copper and bronze, which are dealt with very fully. For corroded bronzes it is to be noted that the author does not favour the electric method of Messrs. Fink and Eldridge, but prefers, and we think rightly, the simple electro-chemical treatment by zinc in alkaline solution or the purely chemical process of soaking in a Rochelle salt or sodium sesquicarbonate solution. Perhaps a little more could have been said about iron as this metal gives greater trouble to museum curators in northern countries than any other. Rosenberg's method, which is in general use in Scandinavian countries, might have been mentioned, but after all the cleaning and

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removal of blisters followed by the use of zinc and caustic soda solution is the simpler method and one which can be thoroughly recommended. Care must be exercised, however, in dealing with iron inlaid with another metal.

To pass from metals to pictures we are glad to see that the suggestions made by a Committee of the Royal Academy regarding the cleaning of old pictures have been quoted. The warning contained therein should be thoroughly taken to heart, and this applies also to rock-paintings or rock-sculptures of an early period, and the tempera, fresco, or oil paintings of a later date. In the few pages given to pictures generally, much useful information, hitherto not readily accessible, has been brought together and presented in a readable and skilful manner.

In the section dealing with the preservation of wood we note that no mention is made about the treatment of objects recovered in a sodden and rotten condition from ancient sites.

Much helpful information is given as to the treatment of stone, pottery, ivory, textiles, horn, feathers, etc. The footnotes throughout the book are most useful, and the bibliography and the numerous references to original articles will be equally so to those who desire to go more fully into the details of the technique employed. Some simple chemical and physical tests are given. One of the features of the book is its simplicity, but we do implore those who have had little experience in dealing with any valuable object to read carefully the introductory pages on this point.

A. J. H. EDWARDS.

FROM THE COLLECTIONS OF THE NY CARLSBERG GLYPTOTHEK.

Copenhagen : Levin and Munksgaard, 1931. pp. 196, illustrated. Price not stated.

The bulk of this book is taken up with a series of iconographical studies by Frederik Poulsen. The remaining articles are various and deal with the painting of Courbet, two fine heads from Amarna, Neobabylonian seals and a group of white-ground lecythi.

Dr Poulsen covers an enormous ground. He discusses at length the interesting statue of Anacreon in his museum, and with it the statue of Xanthippus which stood near the original at Athens. He sees a possible survival of the Xanthippus in a statue now in the Borghese gardens, which bears the stamp of the middle 5th century, and is disfigured only by a head of Trajan wrongly attached. The arrangement of the chlaina and the body of the figure closely resemble that of the Anacreon, but it differs in attitude. Undoubtedly this identification is an important one, and Poulsen's comparison with the Oenomaos at Olympia is apt. We can now increase our knowledge of this very obscure period of Greek sculpture by two copies of great value.

A close study of the portraits of Generals at Athens illuminates a topic often discussed.

The remainder of his article discusses better known and less definite iconographical questions, such as the portraits of Socrates and Plato, of Thucydides, Herodotus and of the Tragedians. A full account of the seated Socrates at Copenhagen is welcome, though it seems strange that it should recently have been so heavily restored in stone. The restoration of damaged statues in stone is a questionable procedure, however well done.

Of the two Amarna heads of Princesses one, in black basalt, is a masterpiece before which the Greek portraits here discussed fade into obscurity. At no period of art was the balance between naturalism and formalism so perfectly achieved as in Egypt at this

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time. Critics must face the fact that Greeks never really produced work of this quality in portraiture. The finest work of Demetrius or Polyuktos looks routine work in comparison with these Egyptian masterpieces.

STANLEY CASSON.

LINDØ: En boplads fra Danmarks yngre Stenalder. By J. WINTHER. *Rudkjøbing: Andr. Brandt, 1926 and 1928. Two vols. pp. 59, 55.*

Lindø is an islet off the west coast of the large Danish island of Langeland, to which it is now joined by a causeway. Here Herr Winther has for many years been excavating a dwelling-site belonging to the later phases of the Danish passage-grave culture, and the results of his work have been published with exemplary thoroughness and a rare wealth of illustration.

The dwellings consisted of a complex of irregular hollows and rough cobbled hearths, one however being a carefully made circular structure of clay. Associated with these were numerous post-holes, arranged so irregularly that it is practically impossible to visualize the lay-out of the huts. At the north end of site 4 however (described in detail and illustrated with a large folding coloured plan in the first volume) there appears to have been a roughly rectangular building, 8 m. by 4.5 m., enclosing two hearths but with one wall definitely bent to avoid a third hearth outside. Abundant remains of burnt daub with the imprint of wattling were found.

The cultural remains which were found give a very complete picture of industries in bone, flint, and pottery. The last two furnish ample indication of the phases of the Danish Neolithic to which the settlement belongs. The square-sided chipped flint axes with thick butts show it to be relatively late and contemporary with the elaborate passage-graves. The pottery confirms this, for while one or two sherds look early, the *floruit* of the settlement is clearly indicated by the occurrence of sherds of the well-known biconical hanging-vases (a particularly fine one is illustrated in vol. II, fig. 41) which are typical of Eckholm's phases III-IV and contemporary with the thick-butted axes.

The Lindø site is of importance in view of the scarcity of habitation-sites of this period in Denmark, and to English students particular interest attaches to the Danish Neolithic cultures, for cultural contacts between Britain and the Baltic seem to have existed throughout our Neolithic and into our Early Bronze Age. Prof. Gordon Childe has recently shown in detail how our Peterborough ware derives from very early Neolithic wares in Denmark, and has also republished the important sherds of actual Danish passage-grave pottery found on the Durham coast—an import which he dates as pre-Beaker here, as in Denmark. Mr. Grahame Clark has made out a convincing case for a Baltic origin for our curved flint sickles, while connexions with the later phases of the passage-grave culture are evidenced by the fragment of a biconical hanging-vase, which should be contemporary with Lindø, found in a Beaker settlement at Brantham, Suffolk. Casual finds of square-butted flint axes and daggers of Scandinavian type have furthermore been recorded from several sites in east Britain. Evidence such as this all shows how long was the persistence of the connexions between the two areas which started in Mesolithic times.

STUART PIGGOTT.

INVENTAIRE ARCHÉOLOGIQUE DE LA SEINE-INFÉRIEURE, PÉRIODE GALLO-ROMAINE. By L. DEGLATIGNY. *Ecceux: 4 rue de la Banque, imprimerie Hérissey, 1931. pp. 241. Price not stated.*

There are few departments in France in which so lively an interest in archaeological work has been shown as in Seine-Inférieure. Local antiquaries have, indeed, often

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expressed their enthusiasm in an acrimony of discussion usually associated with a bygone age. Perhaps if they had fought less they might have effected more; for it must be confessed that, with the exception of De Vesly's work to the south and southeast of Rouen, our knowledge of the Roman period in this Department stands very much where Cochet left it more than fifty years ago.

Cochet's books, however, have been out of print for a long time; so we may give a warm welcome to M. Deglatigny's *Inventaire* which embodies the information contained in Cochet and summarizes the later work. But it is a pity that the author did not allow the book to appear with plans or even a map. It is always difficult and sometimes impossible to find the exact sites on the ordinary *État-Major* maps, and readers might in any event have been spared such a labour. What seems to be a defence by implication—that the data will be included presently in the International Map of the Roman Empire—is not valid, for this map (perhaps unfortunately) does not concern itself with small finds of tiles and pottery.

When we do put the finds on a map, the results are interesting and rather unexpected. The areas of maximum habitation seem to be the plateau of Boos to the southeast of Rouen and the environs of Dieppe, but the valleys of Eaulne and Durdent, and even the infra-cretaceous lands of the Bray (a district very similar both in appearance and geological history to the Weald of Kent) show up well on the map. On the other hand the Vexin to the east of Rouen and the Pays de Caux to the north of Lillebonne are almost blank. It has indeed been suggested that intensive cultivation in later ages has obliterated the Roman remains, but this hardly seems adequate to explain such complete blanks. Moreover the distribution of *-acum* place-names and Merovingian cemeteries follows the lines of the Roman distribution. Perhaps the difficulty of obtaining water by any means other than by capturing the rainwater in ponds and the fact that the plateau loams, though excellent cereal land, need careful drainage, were sufficient to frighten early cultivators off these areas. The plateau de Caux, indeed, seems from the place-name map published by Sion to have been settled mainly by the Norsemen, and it is remarkable how, on the whole, barbarian place-names and Gallo-Roman sites tend to occupy mutually exclusive areas on the map.

It is difficult to draw any certain conclusions from a detailed study of the distribution-map, as the very great majority of the finds consist merely of tiles and pottery. But the fashionable theory of the moment in France, which holds that a continuity both in function and substantial appearance existed between Roman villa and modern village, receives little confirmation from this Department. When the sites are plotted on the maps of Cassini, the villa-system (whatever it was) seems about as independent of parish organization as it is in Britain.

The villas on the whole resemble British types; there are several corridor-houses very like Hambledon, and Maulevrier shows a basilican house used as outbuildings of a corridor-villa. Ste. Marguerite-sur-Mer, near Dieppe, gives us a very interesting example of an Italian court-yard plan; in Britain we should call it 'a town-house strayed into the country'. The villas seem to date mostly from Neronian or early Flavian times—a little earlier than is usual in Britain. Of their subsequent history little can be said; none of them has produced anything like a long enough coin list, and excavators are still helpless with anything but coins. It is altogether premature, for instance, to argue a complete dislocation of country-life after the 3rd century invasions—in this area at least. No certain trace of post-Roman habitation seems to come from a villa-site, though more than one was utilized after abandonment as a barbarian burial-place.

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Coin finds, however, suggest one or two interesting points of history. The unusual abundance of Commodus hoards in the district (6 out of 15 for the whole of Gaul, and there are probably at least two more), makes it possible that the district was closely affected by Albinus' campaigns; and De Vesly's discovery of London mint-marks on coins in one of his excavations suggests that the old Normandy-Britain crossing may have regained importance in the Later Empire. Literature (Panegyrics and Ammianus) has something to say on this; and such a revival would explain the road-making at Bitterne in the 3rd century and perhaps also the rise of the New Forest pottery industry. Finally the absence of any coins later than Honorius from this department (and its neighbours) will have to be considered when judgment is passed upon Mr Collingwood's view of the evacuation of Britain.

That theories can be spun and deductions made is evidence of the book's value—whether the theories are right or not. Gallo-Roman archaeology has been too long in the habit of viewing Roman remains as 'interesting objects scattered up and down the country' and has forgotten that it 'is dealing with a great empire'. Roman Gaul has not yet found its Horsley and its Haverfield, but when it does, a deep debt of gratitude will be owed to the compilers of *Inventaires* such as this. C. E. STEVENS.

THE OLD AND NEW TESTAMENTS IN MUSLIM RELIGIOUS ART. By Professor Sir THOMAS W. ARNOLD. The Schweich Lectures of the British Academy, 1928. Oxford University Press, 1932. pp. 47, with 19 plates. 6s.

In these short lectures, printed posthumously, Sir Thomas Arnold, who had made the study of the origin and development of Islamic painting his own, has collected material which has never been published before. He shows how, despite the ban on painting which orthodox tradition attributes to Muhammad himself, art—and that a Muhammadan art—managed to survive the assaults of fanaticism within and barbarism without the Islamic community. His thesis is that the ecclesiastical art of the Syriac-speaking churches ultimately goes back to Byzantine originals and that this art, together with the artistic tradition of Mesopotamia and Persia, influenced Muhammadan painting. Notwithstanding the comparatively meagre remains of both Christian and Muslim pictorial art the author is able to point to the definite influence of the older religion on Islam. It is not surprising that some of the examples are not of a high order of merit; the richer churches and libraries naturally suffered most from invaders and therefore bequeathed least to posterity.

The Qurān has borrowed heavily from the Old Testament, and consequently the Garden of Eden, the Flood, and the stories of the patriarchs, are common to the hagiology of Christianity and Islam. Such stories were favourite themes of painters, and we find that the Muslim painter has followed earlier models as closely as could be expected. Unquestionably the best examples artistically are the illustrations taken from comparatively late Persian MSS, and here, in my judgment, Christian influence has worn very thin. The picture of Joseph meeting with an old shepherd has a beauty and charm of its own.

In the third and last chapter the New Testament is dealt with. Here the material is comparatively slight; the Annunciation, Nativity, and Baptism are depicted each in its characteristic Muslim form. The progress of Muslim painting is followed as far as the 19th century, and the author explains why it is that the figure of Jesus differs entirely from Christian models despite the remarkable underlying unity of the likeness of Christ throughout the Christian world in every age.

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Many will read with surprise of the figure of Christ holding the orb in his hand and the copy of the painting of the Virgin in the Borghese chapel which were once on the walls of the palaces of Agra.

Apart from the value of this study of a little known field of art a reader who has no special knowledge of Islam will learn much of the religious beliefs of Muslims from these pictures, which are most skilfully and carefully reproduced. Islamic scholars will be reminded of their loss in the death of the gifted and much loved author.

ALFRED GUILLAUME.

VERGIL'S TROY: essays on the Second Book of the Aeneid. By W. F. JACKSON KNIGHT, M.A. *Oxford: Basil Blackwell, 1932. pp. ix, 158. 4s 6d.*

This sympathetic study summarizes and completes the investigations made by Mr Knight into the second book of the Aeneid. The writer subjects the familiar story to a penetrating analysis, first from the standpoints of poetic and epic technique, and secondly in its literary and mythological aspects. His comprehensive chapter on Vergil's use of existing traditions is a much-needed protest against the far too frequent stigmatizing of the poet as a mere copyist; while his treatment of the Vergilian hexameter, though marred by the excessive use of ugly terms such as 'homodyne' and 'heterodyne', is proof of an exceptional sensitiveness to the peculiar magic of sound as interpreted by Vergil—one misses, however, a reference to the late Dr Bridges, whose own experiments in *Ibant Obscuri* both anticipate and support Mr Knight's conclusions. There is a most interesting chapter on the story of the siege of Troy and its meaning: the author holds that the wooden horse had a magical, not a military significance; its purpose was 'to damage the Trojan defence by supernatural means', in short to destroy the power existing in the sacred wall of Troy by a ritual leap over it, a theory which seems to clarify many difficulties. The book is well documented, and forms a valuable addition to the existing volumes in Mr Blackwell's series.

R. G. AUSTIN.

THE HISTORY OF SCARBOROUGH. Editor: ARTHUR ROWNTREE. Contributors: R. E. M. WHEELER, R. G. COLLINGWOOD, A. HAMILTON THOMPSON, JEAN ROWNTREE, A. J. GRANT, D. MONTGOMERIE, M. BLACK, and the Editor. *J. M. Dent and Sons Ltd., 1931. pp. xx, 456 with 130 illustrations and two end-paper maps. 21s.*

This book is an excellent example of co-operation in the production of a local history. The team collected by the Editor is notably well equipped for the work in hand. The watering-places of the English coast are not usually remarkable for length of history, but in Scarborough its modern activity as the chief resort on the northeast coast is only the latest phase in a long career.

First a landing place for settlers from the Continent in the early Iron Age, then the site of a Roman signal station, and so, after the comparative obscurity of the Dark Ages, a borough and port dominated by a castle of the first rank, Scarborough has successfully avoided the decay which has come over many other coast towns since the Middle Ages, and for this it has to thank its admirable natural situation.

After a short introduction by the Editor, Mr Black discusses the configuration of the Scarborough area, showing that the site owes its importance to the occurrence of the Castle Hill and good natural harbour at the south end of a coastal strip of some fertility caused by a thick deposit of boulder clay left behind by the North Sea ice-sheet. Dr Wheeler then takes up the story and considers the district still further in the relation of

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human occupation to geography in the Stone, Bronze, and Iron Ages, and necessarily pays most attention to the remarkable discovery in 1923 of an intrusive settlement of early Iron Age folk from the Continent on Castle Hill. The chief trace of these people is a series of rubbish pits containing pottery with Hallstatt characteristics associated with tools and weapons of bronze belonging to the latest phase of the Bronze Age. Dr Wheeler points out that although this association raises geographical problems, its chronology is not difficult if it is remembered that the early Iron Age pottery of much of Central Europe is the same as the late Bronze Age pottery of the outlying lands. He also contributes a very useful appendix on the linear earthworks of the Scarborough region. All who are familiar with the field archaeology of east and northeast Yorkshire will know these remarkable works which cross the Wolds in all directions, and are also found on the moors to the north. When considered in relation to the ancient topography of the areas their purpose is clear. They are not strictly defensive, but were intended to delimit areas of human occupation, restrain the wanderings of cattle, and complicate cattle-raiding.

The Roman episode at Scarborough falls into the authoritative hands of Mr R. G. Collingwood, who describes the Roman signal station found and excavated on Castle Hill on the same site as that of the early Iron Age settlement. He gives a short discussion of the problem of the coast defence of the Roman province, and points out that the signal stations of the northeast Yorkshire coast were the work of Theodosius when he restored order after the disaster of A.D. 367, and that the last date at which we may be certain they were still in commission is 394. There is a careful description of the tower with its surrounding defences as revealed by the excavations of Mr Simpson.

Between the destruction of the signal station and the opening of the full Middle Ages, Scarborough has little known history, but it is at this time that the place gets its name, not from its natural situation, it would seem, but from Thorgils Skardi, 'the hare lip', who harried England with his brother Kormak in the middle of the 10th century. The Kormakssaga tells us that 'they were the first men to set up the stronghold called Scarborough'. This event may be dated with some certainty at 966-7. Traces of a small chapel and graveyard of pre-Norman date were found within the ruined tower of the Roman signal station, and over the whole a later Norman chapel was constructed. Dr Hamilton Thompson believes that this first chapel was founded early in the 11th century as a beacon chapel. A small town had grown up under Castle Hill by 1066, but it was so completely destroyed by Harald Hardrada on his way to his defeat and death at Stamford Bridge that there is no mention of the place in the Domesday Survey.

Medieval Scarborough receives full measure from the hands of Dr Hamilton Thompson and Miss Jean Rowntree. The history of the Cistercian cell at Scarborough, its opposition to the coming of the Franciscans, and the vicissitudes suffered as an offshoot of an alien house during the Hundred Years' War, and its final passage into the hands of the Prior of Bridlington in the 15th century are recounted by Dr Thompson, while Miss Rowntree expounds the rise of the borough and the numerous disturbances caused by faction fights between the richer and the poorer burgesses which were a feature of the life of the town in the 14th century.

Mr Montgomerie deals with the architectural and political history of the Castle, which contains such diverse episodes as the expulsion of Piers Gaveston, the ill-fated friend of Edward II, the defence of the place for Charles I in the Civil Wars, and a final preparation for active service in 1745 before the threat of the Young Pretender. Professor Grant contributes a chapter on the town in the 16th and 17th centuries, paying

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special attention to its fortunes in the Pilgrimage of Grace, and the stirring days of the Civil War sieges, the last of the seven to which the place has been exposed.

The remaining six chapters are the work of the Editor, who traces the history of the port in detail and also the rise of the 'Spaw' which began to draw an increasing number of visitors in the 18th century, though its very existence was threatened by a landslide which temporarily destroyed the spring in 1737.

The development of the modern town in the 19th century, its government, and the rise and organization of the modern seaside resort occupy two chapters, and the work closes with an account of the men and women of Scarborough and their characteristics as revealed by their wills over a period of three hundred years. An amusing feature occurs in the will of one Steven Wodde who, in Queen Elizabeth's reign, bequeaths 'to my mother in law Mrs Cooke a crowne of gold'.

The book is illustrated by water-colours, prints, and drawings, and well-executed plans clarify the chapters dealing with architectural topics. An interesting feature, all too rare in local government annals, is the sense of responsibility for antiquities under its charge which has been shown by the Scarborough Corporation in giving every facility for excavating the interesting sites on Castle Hill, and providing money for the purpose. Scarborough is to be congratulated on its good fortune.

C. W. PHILLIPS.

LA VOIE ANTIQUE DES CARAVANES ENTRE PALMYRE ET HIT au 11e Siècle ap. J.-C. D'après une Inscription retrouvée au S.-E. de Palmyre (Mars 1930). (Extrait de la Revue SYRIA, 1931).

This extract records an inserted column, dedicated to one of the merchant-princes of Palmyra, in the days of her prime, which was discovered in 1930 at a point 22 kilometres to the southeast of Palmyra.

Its interest is two-fold. It shows how the Palmyrenes of that day worked under the aegis of Rome in their attempts to maintain commercial relations with Parthia, and even to tap the wealth of the Indies by way of the Persian Gulf; it also proves the actual line of the trade-route which connected that caravan-city with Mesopotamian Parthia and with the Persian Gulf. We can now, therefore, add one more to our map of the ancient routes which traversed northern Arabia and the Syrian desert.

Air reconnaissances showed that the route led in an almost direct line from Palmyra to Hit, with a branch track leading off to the Parthian station of Dura, by way of the Wadi el Miya, and the Wadi Suab. It is of interest to note that this is practically the line followed by Miss Gertrude Bell on her return journey from Baghdad to Palmyra in 1914, and we know of a string of fortresses on this line, *viz.* :—Qasr Tayyar in the said Wadi el Miya, where doubtless the track bifurcated to Dura, a Qasr in the upper Wadi Suab, Qasr Helgum, Muhaiwar in the Wadi Hauran, Amij and Khubbaz and thence Hit. These Qusur are roughly forty miles apart.

The inscription, in Greek and in good condition, was found by the wells of Umm el 'Amad, a steined well of some depth, in the neighbourhood of the ruined sites Bukharra and Bazurije (Bell). The date shows that the route was in use in the middle of the 2nd century A.D., the highest peak of Palmyrene commerce, and it probably fell into disuse at the time of the Parthian rising in A.D. 162.

D. CARRUTHERS.



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Antiquity

A Quarterly Review of Archaeology

VOL. VII No. 28

DECEMBER 1933

Editorial Notes

THE present number of *ANTIQUITY* completes our seventh volume and we hope it will not be considered tiresome if our Notes are concerned with domestic affairs.



The last three years must have tested the vitality of many journals, and there is evidence that even those of a popular nature have felt the economic storm which our country and all parts of the World has experienced. It has affected the means of those who always support and encourage good literature, and it has also influenced many not so affected to curtail expenditure in directions where continued support would have been most helpful, and to them we appeal particularly.



We are glad to say that in spite of difficulties *ANTIQUITY* has held its own and we can safely assert that its reputation was never greater than now. In many respects it stands alone among the archaeological journals of the World. At the same time there are certain signs which give rise to anxious moments as to the future and cannot be ignored.

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So far we have not begun economies in the number of printed pages, or of illustrations (as will be evident from the contents of this number) but it is possible that eventually some change will have to be considered.

At the moment we do not feel that the question of such changes need be faced for the next year at any rate, and our hope is that they may be avoided altogether, for what we seek now is the help of our subscribers—those who have supported ANTIQUITY from its first number and those who began to subscribe later, and all who have encouraged us by friendly criticism and personal help.



We aim at securing at least another 500 subscribers. So far as our own efforts are concerned no opportunity is missed of introducing ANTIQUITY by means of information-leaflets and specimen copies, but there are many people (as we know from experience) who have never seen it. It is here that each one of our subscribers can help us. A card to either of the Editors (addresses on page 2 of our cover) will ensure particulars being sent to any part of the World. If at the same time a direct recommendation is given we feel sure it would have welcome results.



Another form of help by those able to give it is to subscribe for ANTIQUITY to be sent to a friend for one year (One Pound to any address). This often leads to the subscription being continued by the recipient. Several of our subscribers have for this purpose taken more than one copy of each number and a very good friend has this year been responsible for four copies.



Lastly—though we pause as to the wisdom of mentioning this—there may be some subscribers who are hesitating whether their own subscriptions shall be continued. To them we appeal on the grounds

EDITORIAL NOTES

that ANTIQUITY makes a real contribution to knowledge. We also ask the few subscribers who have already intimated that they would not require it after the December number to alter their decision.

We would also draw attention to the notice printed on the next page.



In our last number we published some remarkable air-photographs taken in the Oxford district by Major Allen ; and we threw out a hint that it was to be hoped that other countries would soon begin exploring their countryside by the same method. We were thinking particularly of France, partly because the conditions, geological and agricultural, of that country are peculiarly favourable, and partly because this method of research is one that seems specially adapted to the French genius.



Our contemporary, the *Journal des Débats* (28 September), which never fails to inform its readers of the contents of each number of ANTIQUITY, admits the great possibilities which await the air-archaeologist in France. M. Henry de Varigny, in his column entitled 'Revue des Sciences', suggests further 'que Crawford rédigeât un manuel de l'exploration archéologique par avion et photographie aérienne'. We do not however think that we can do more than we have already done, in 'Wessex from the Air', 'Air Survey and Archaeology', and 'Air-photography for Archaeologists' (to say nothing of articles and notes in ANTIQUITY) to lay down the first principles of the method. Surely with these publications the aviator should be able to do what is required? The 50 photographs published in 'Wessex from the Air' were the only ones taken by archaeologists; all the others, until Major Allen's, were taken by pilots of the Royal Air Force in the ordinary course of their photographic duties. What our pilots can do, surely French pilots can do also. With the exceptions just noted, all our results in England have been obtained through the cooperation of archaeologists on the ground with aviators who had little or no special archaeological knowledge. It is tantalizing to think of the neglected opportunities, of the lost historical documents, so to speak, of a summer like the one just past. For an air-photograph of a

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new ancient site *is* a document of almost equal value to an original manuscript of the period ; and when that period is prehistoric, and therefore without manuscripts, it is the ideal substitute.



Since the last paragraph was written we have received a copy of the *Journal des Débats* (26 October), in which M. Henry de Varigny records the taking of air-photographs of an alleged ancient site in France. It is unfortunate that the first efforts should be wasted upon a fraud. The Côtes de Clermont, which is the site photographed, contains nothing but recent and quite modern structures of an agricultural nature, which should deceive no one with the least claim to be called an archaeologist. (We formed this opinion ourselves merely from the photographs published in *The Times*). The site of Gergovia is quite certainly the hill 7 kilometres to the south of Clermont Ferrand—a hill to which the name Dzargoy is still applied, and which was formerly called Gergoye. We recently exposed this false claim in ANTIQUITY (June 1933, pp. 216-9).



VOLUME VIII, FOR 1934

A renewal form for subscriptions for 1934 is inserted in this number and we shall be very glad if our subscribers will return it with their cheques as promptly as they may find convenient. The forms are omitted from copies sent to subscribers who pay through banks or who have already paid for 1934.

The Neolithic Age in Northern China

by CARL WHITING BISHOP

NORTHERN CHINA forms an integral part of the north temperate zone of the Old World. It is, moreover, connected with western Asia and eastern Europe by a long but continuous belt of steppe presenting no transverse barriers to migration, whether faunal or human. It cannot, therefore, be treated as a region apart, save in a very limited and subordinate sense.

The surface consists in the main of mountains in the west and of plains in the east. Over much of it lie thick deposits of loess, extending from Chinese Turkistan right across eastern Asia, nearly to the Yellow Sea.¹ These great accumulations of wind-borne soil were most probably formed during times roughly contemporary with the Riss-Würm glaciation of Europe.

That the north of China as a whole has ever been covered with forest in recent geological times is improbable. For loess tends to discourage a dense tree-growth, which would also have been checked by the annual inundation of considerable areas of plain. Nevertheless certain mountainous regions, now almost treeless, are described by ancient writers as well forested; while the faunal evidence shows that continuous strips of woodland must once have crossed northern China to connect the great forests of the south and centre with those of Manchuria.²

The plains, while thus not wholly devoid of trees, must have consisted in the main of vast areas of grass. Across them flowed numerous streams, chief among them the Huang Ho or Yellow river. These, subject to summer flooding, were bordered by shallow lakes, marshes, and reedy meres.

¹ On the extent of the loess in northern China, see V. K. Ting: Prof. Granet's 'La Civilisation Chinoise', *Chinese Soc. and Pol. Sci. Rev.*, 1931, xv, 268.

² Regarding the former existence of wooded areas in northern China, see A. de C. Sowerby: 'The Natural History of China', *Journ. North China Branch R.A.S.*, 1922, LIII, 3; also his *A Naturalist's Note-Book in China* (Shanghai, 1925), pp. 12 ff.

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The climate seems to have been rather warmer and more moist in late prehistoric times than it is now. For even during the full historical period, beginning in the 9th century B.C., the bamboo is mentioned as growing considerably to the northward of its present limit; and in a peat deposit near Peking have been found bones of the water-buffalo and the water-deer (*Hydropotes inermis*), warmth and moisture-loving creatures which could not live in that region today.

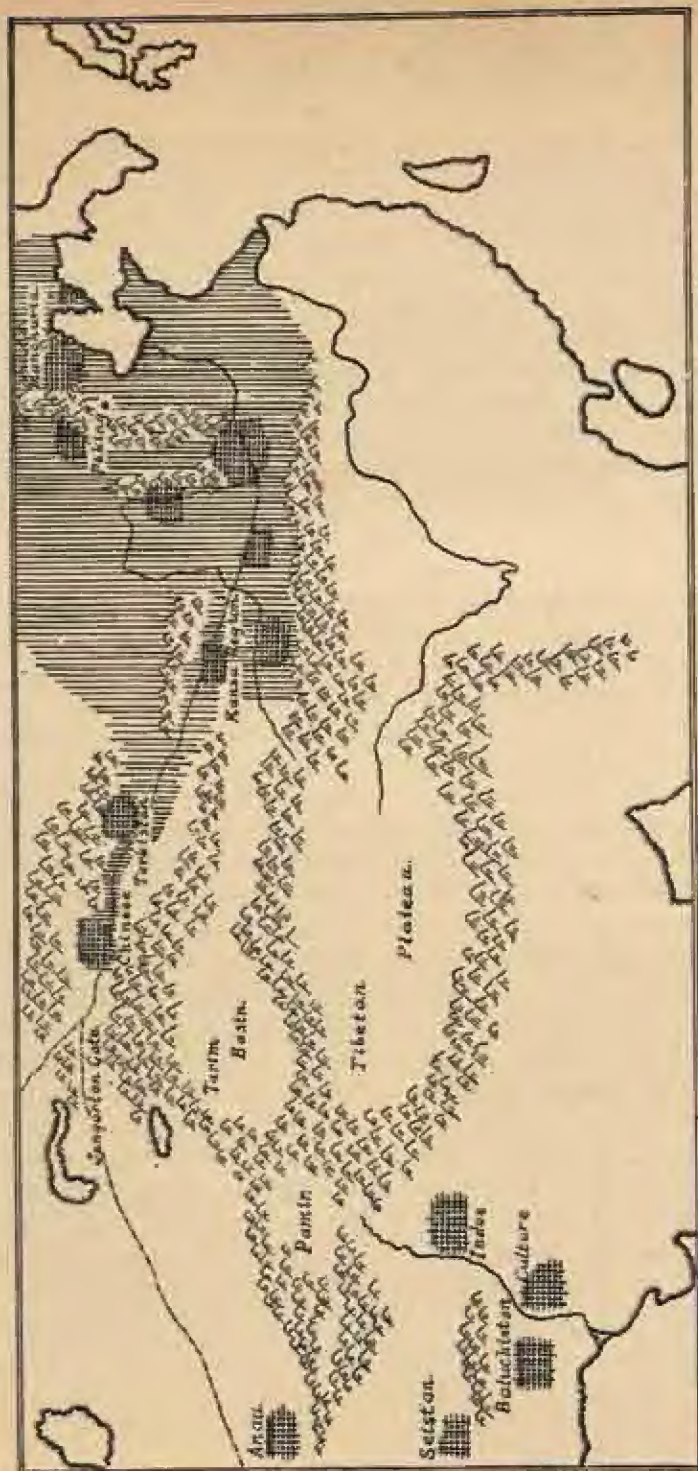
Both animal and bird life were exceedingly abundant. Forest, parkland, and steppe types all occurred. In addition to the present-day forms there were many which have since disappeared; among these were the elephant, probably the rhinoceros, and various species of wild oxen.

Throughout the more recent human period, movement in south-eastern Asia has generally been from north to south; or, perhaps more accurately, from the centre of the continent outward, toward its periphery. To inner Asia, then, we must turn for our earliest evidences of post-glacial human activity.

In times probably contemporary with the closing phases of the European Ice Age there existed in Mongolia a Palaeolithic type of industry. This was eventually replaced by another, which, like its equivalent in the west, made use especially of microliths. In Europe the Epipalaeolithic disappeared before a developed Neolithic, coming apparently from the east. In Mongolia, on the contrary, it seems to have developed by degrees into an early Neolithic.³ Whether this evolution took place there spontaneously, or whether it was the result of culture-borrowings from regions to the west, it is still too early to determine.

Neither the Epipalaeolithic nor any early phase of the Neolithic have been found in China proper. There the Palaeolithic occurs at the base of the loess, while just beneath the present surface, and even actually upon it, remains of a fairly well developed Neolithic are extremely abundant. Between these two cultural horizons lies an enormous gap. During much of the Late Pleistocene, while the loess was being deposited, steppe-desert conditions unfavourable to human existence are believed to have prevailed in northern China. It may be,

³ Concerning this development, see N. C. Nelson: 'The Dune Dwellers of the Gobi', *Natural History*, 1926, xxvi, 251; also his 'Archaeological Researches in Northern China', *Amer. Anthropologist*, 1927, xxix, 197.



Northern Chinese Neolithic |||||; Painted Pottery ###; Migration Routes ~~~~~

FIG. 1

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of course, that evidence of an earlier stage of the Neolithic, or even of an Epipalaeolithic, will some day come to light ; but this at present seems little likely.

The Neolithic which we do find there was essentially that which came to exist throughout a large part of eastern Asia. Decidedly northern in cast, some of its elements have a nearly circumpolar distribution. It was notably homogeneous in character, both in time and in space. Hardly any signs of development appear save in certain limited areas, and even there only under the influence of stimuli from other lands. This indicates a very early hardening into a rigid routine, a fixed and immutable pattern, perfectly adapted to its environment but incapable of initiating progress from within.

The skeletal evidence shows that the physical type of the Neolithic people of northern China was that which predominates in the same region today ; there has been no break in racial continuity.⁴

As in Europe, so in northern China, settlement in Neolithic times sought the drier and more open lands, since these could more easily be brought under cultivation by people having no effective means of clearing forests or draining marshes. For this reason, in part, traces of early habitation are most abundant in upland regions. Their relative scarcity in the plains is, however, probably due to another cause also ; for there, such remains as escaped being buried under deposits of silt would tend to be obliterated by long and intensive cultivation.

Sites are sometimes extensive. One partly excavated of late was found to be nearly seven miles in length by over a mile in breadth ; but there is no reason to suppose that more than a small portion of this area was inhabited at any one time (fig. 3). Sometimes a favourable spot was re-occupied after a considerable interval ; the large site just mentioned disclosed, in the portion excavated, three periods of settlement.

The dwellings of the Neolithic Chinese were beehive-shaped pits, usually circular but sometimes elliptical in plan (fig. 4). These vary in diameter from four metres to two or even less ; in depth they average under three metres. Some of the smaller ones can only have

⁴ On this, see Davidson Black : 'The human skeletal remains from the Sha Kuo T'un cave-deposit in comparison with those from Yang Shao and with recent North China skeletal material', *Palaeontol. Sinica*, ser. D, vol. 1, fasc. 3 (Peking, 1925), p. 98 ; also 'A note on the physical characters of the prehistoric Kansu race', *Mems. Geol. Survey of China*, ser. A, no. 5 (Peking, 1925), *passim*.

THE NEOLITHIC AGE IN NORTHERN CHINA

been used for storage purposes ; similar storage-pits are made in the same region today.

These dwellings were probably roofed over with timbers upon which earth was heaped. Entrance seems always to have been from the top ; for neither lateral doorways nor pivotal door-stones have been found, though both are quite usual in the modern loess cave-dwellings. At the large site mentioned above, the pits of the uppermost occupation-stratum were only one and one-half metres deep ; this indicates that huts had by that time come to project farther above ground. Interiors were in many cases finished off in lime plaster, well-smoothed, while a grayish layer at the bottom suggests the use of floor coverings, perhaps of mats, rushes, or sheets of bark. Both in and near some of the pits have been found earthenware cooking-stoves resembling those used by the modern peasantry.

Villages were perhaps vacated yearly, from spring until autumn, if we may judge from the practice in vogue among the Chinese peasantry of the earlier historical period. For these seem to have left their permanent habitations at the beginning of the planting season to occupy huts (probably raised on piles or built in trees) near their fields, that they might protect the latter from the ravages of wild animals and birds.

No evidence either of earthworks or of stockades has been found in connexion with Chinese Neolithic villages. It is possible that these were protected by *zarebas* of jujube thorns like those which crown the mud walls of hamlets in the same region today ; but, as we shall see, there is little sign of warfare, and settlements appear to have relied for protection chiefly upon their position.

Villages seem not to have been occupied very long ; for they have rarely grown into mounds. It must be borne in mind, however, that débris will gather far more slowly on a site consisting of pit-dwellings than on one occupied by buildings ; for ruins of the latter form the principal element in such accumulations. The practice of shifting villages about was undoubtedly due principally to the method of cultivation, which rapidly exhausted the soil in the vicinity ; and to that practice, rather than to any great density of prehistoric population, must be attributed the very general distribution of Neolithic remains over so many parts of northern China.

When the use of pit-dwellings ceased in that country is unknown. They remained the habitations of the lower classes until well along in the Chinese historical period, and certain 'barbarian' neighbouring

peoples are represented as using them much later still ; in parts of eastern Asia they survive even today. The Chinese character *hsieh*, now meaning a den or cave, in its older form clearly represents a vertical section of such a pit-dwelling with its timbered and domed roof (fig. 2). Archaeology has in this instance, as in so many others, confirmed the evidence of epigraphy.



FIG. 2. CHINESE CHARACTER *HSÜEH* IN ITS MODERN (left) AND ANCIENT (right) FORMS

The Neolithic people of northern China depended principally for subsistence upon planting ; this must have been carried on by the *milpa* or *jhum* method, the only one possible at that stage of culture.³ There is no trace whatever of a pastoral form of life. A few bones of wild animals and birds and the considerable use of antler as the material for various implements show that some hunting was done ; but little reliance seems to have been placed upon it as a means of procuring food. Fishbones and the shells of tortoises and freshwater molluscs are found ; and certain stone objects may be net-sinkers, although nothing suggesting a fish-hook has yet been reported. It is obvious, however, from the archaeological evidence, that both hunting and fishing played a very subordinate part to planting.

Certain pierced stone discs may have been weights for digging-sticks. Large leaf-shaped stone objects must have served as blades for mattocks, or perhaps for foot-ploughs like the Hebridean *caschrom*⁴ ; a nearly identical implement, now of course shod with iron, is still used by the Chinese peasantry in some areas, and appears from the records to be of great antiquity. Other objects are obviously small stone hoes (fig. 5).

South of the Yellow river, in association with polished stone axes, occur worked stones bearing a superficial resemblance to Campignian picks ; these however may belong rather to the southern than to the northern phase of the Chinese Neolithic. An object made from the shell of a freshwater mussel, with serrated edge and a constriction near one end as if for lashing to a handle, seems pretty surely a sickle. A fragmentary implement from Kansu, consisting of a bit of bone with microlithic blades set in a groove, may have served a similar purpose.

³ By this method, plots of ground are cleared, often by fire, and are then cultivated for two or three years, until their fertility has become exhausted, when they are abandoned.

⁴ On the *caschrom*, see E. Cecil Curwen : ' Prehistoric Agriculture in Britain ', *ANTIQUITY*, 1927, 1, pp. 261 ff.

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Another proof of the importance of planting in Neolithic China is the abundance of mealing-stones—flat slabs rubbed down smooth on one side ; these may be of basalt, granite, or even sandstone. Both in the modern northern Chinese peasant and in his Neolithic ancestor, it may be noted, the teeth are much worn down—the result of a gritty diet, full of mineral impurities. Used on these mealing-stones in order to grind or at least bruise the grain were certain stone cylinders with knobbed ends. These are said to be common in Siberia also ; and they are likewise found in Japan. They have been interpreted as phallic symbols, or as badges of rank. That some of them were used for grinding grain is certain. By reason of that very association, however, they may well have come to play a part in the fertility cults of Neolithic eastern Asia.⁷ Some of the Japanese examples are far too large and too highly ornamented to have served any functional purpose ; they must have had some symbolic significance, almost certainly of a religious character.

Fields were probably tilled in common, as they were indeed far on into the historical period ; for the practice of *jhūming* is incompatible with individual ownership of plots. In all likelihood the work of clearing the ground and preparing it for cultivation was done by the men, while the actual sowing and reaping were performed by the women, for magical reasons connected with the idea of fertility ; such at least is the procedure, and such the motives for it, among the more backward peoples still surviving in southern China and Indo-China.

Leaf and root crops were pretty surely grown by the Neolithic Chinese, as by their modern descendants ; for man must have brought plants of that type under cultivation far earlier than any of the cereals. Thus far, wheat has not appeared, although it was already known in China at the beginning of her historical period. The earliest cereal grown there, as probably in most lands, seems to have been millet. The common species, *Panicum miliaceum*, has been found on Chinese Neolithic sites. In the early writings this is the chief cereal mentioned, and it is the only one to possess a religious significance—itsself a sign of great antiquity.

Among other grass-seeds used for food, if not certainly cultivated, were those of *Setaria lutescens*, a common weed extending clear across Eurasia and sometimes, though improperly, called *S. glauca* ; its seeds have been found in a Neolithic cooking-vessel. From one site, grains

⁷ Compare the way in which the humble shepherd's crook has developed into the bishop's crozier.

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of *Sorghum vulgare* have been identified. If these date in reality from Neolithic times, as appears certain, their discovery is of decided interest; for hitherto it has been generally believed that this valuable food plant, the *kaoliang* or 'giant millet' of the modern Chinese, was introduced from India about the 6th century A.D. No evidence yet exists that rice was known in Neolithic China save perhaps in Kansu, where its husks are said to have been found incorporated in fragments of pottery.

The Neolithic Chinese may, like their descendants of early historical times, have made a sort of beer from millet; for its manufacture extended over a large part of eastern Asia, where in some areas its use has continued down to recent or even modern times. The process usually employed has been that of chewing the millet and then steeping it in water; the knowledge that this will set up alcoholic fermentation (through the action of the ptyalin in the saliva) is widespread, and apparently very ancient.

On the basis of its possession of domestic animals, the Neolithic culture of China cannot be rated as a high one. That of Europe had the ox, goat, sheep, pig, and dog.* In China it is only the dog and the pig which certainly go back to Neolithic times. Their bones, and especially those of the latter, occur in enormous numbers, while those of other animals are almost wholly absent. Thus on the large site already mentioned, along with vast quantities of dog and pig bones and a very few of wild animals like the leopard and water-deer, there were found only a few vertebrae of a small bovid and the fragmentary mandible of a young sheep; and there is no assurance that even these did not belong to wild individuals.

There is no sign that the domestic fowl was yet known in China during the Neolithic, although it may already have been present in the south. In the Chinese Bronze Age, on the other hand, it was the fowl, along with the pig and the dog, which provided the chief source of flesh food for the peasantry.

The most characteristic implement of the Neolithic everywhere, the polished stone celt, occurs in China in vast numbers. Just as in so many other lands, there also it is associated with thunder, and is sometimes thought to have curative properties. It is more common in its adze form than as an axe. Possibly it was hafted in a 'sleeve' of antler; for the Chinese carpenter today hafts his iron adze (in wood,

* The horse as a domestic animal may have appeared in the Occident just before the close of the Neolithic there.

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of course) on the same principle. No shaft-hole stone axes have been found in China proper; examples from Mongolia seem from their shape to be imitations of metal forms, as do also knobbed stone mace-heads from the same region.

Certain grooved stone objects perhaps served as net-sinkers, while others were axes or hammers; the latter fact is one among many which point to northern contacts. In some districts today, grooved stone mallets are made by shaping the head and then bending a split withy around it for a handle—almost surely a clear case of a Neolithic survival.

Of frequent occurrence are rectangular or semi-lunar stone knives with round perforations, similar to forms found elsewhere in eastern Asia and even among the Eskimo of America.*

Arrowpoints are found, though in no great numbers. They are of various shapes and sizes, and are made of slate, chert, bone, shell and other materials. Different types occur together in the same deposits and were apparently used at the same time. Stone arrowpoints are mentioned among the articles of tribute sent from the Yangtze valley in early historical times; and we know that they continued in use in parts of northeastern Asia until very late. Whether the bow used during the Chinese Neolithic was of the composite or 'reflex' type employed in China in all later times, we have no means of knowing.

Stone and clay balls are numerous. Possibly the smaller ones were missiles for the pellet bow, known very early in China. The larger specimens may have been sling stones. The Chinese sling, used as a weapon of war in recent centuries and still surviving as a child's toy, consists essentially of a cord or thong attached to a short handle.

Scarcely any of the implements found can be interpreted with certainty as heads of spears, javelins, or harpoons; weapons of this class, as far as our evidence goes, seem to have been little, if at all, used.

Objects very numerous on Chinese Neolithic sites are rings of many shapes and sizes, in stone, clay, shell, carved bone, and perhaps other materials. Their vast numbers show that they were articles of importance. Some may have been pendants, others bracelets or armlets; others still, it would seem, were votive offerings. There occur also picks of antler; bone awls, hairpins, and perforated needles; stone beads; cinnabar, perhaps used for painting the body or face; fragments of nacre; and many other remains of a miscellaneous sort.

Textiles have not survived; but their impressions on pottery show

* Compare the disc-shaped (but of course unperforated) flint knives of the British beaker-folk; described by J. G. D. Clark in *Proc. Preh. Soc. East Anglia*, 1929-32, VI, 41-54.

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that weaving was known. Some kind of fibre-producing plant, in all probability hemp, may have been grown, and perhaps bark-cloth was made. Furs were pretty surely worn in cold weather, as we know they were later; the modern northern Chinese peasant makes great use of sheepskin garments. Impressions on pottery, again, show that baskets and matting were woven.

The bone needles found on practically all sites prove that sewing was done. Thread was spun with the aid of spindle-whorls of clay or stone; these occur in large numbers. The eyes of the needles were almost certainly bored with the help of the bow-drill, as were, in all probability, the perforations in stone knives and other objects. The bow-drill is still used by the modern Chinese carpenter and joiner. In Neolithic times it was most likely employed in making fire as well as in drilling holes.

Pottery occurs in huge quantities on Chinese Neolithic sites. Usually it is very fragmentary; only in association with burials do we often find complete vessels. Broken ones were sometimes cleverly mended by drilling small holes through the opposing edges and then lashing them tightly together; this practice clearly adumbrates the modern Chinese method of repairing crockery with tiny metal clamps. Pottery was made by the 'coiling' process, once general in eastern Asia and still used in parts of China itself.

Most of the shards are grey, coarse, poorly levigated, and badly fired. A few are pinkish buff in colour, of finer texture, and with a rather powdery surface; while certain harder specimens show a dark blue-gray fracture. They often bear impressions, of string, of textiles, of matting, or of basketry. Incised decoration is likewise found, sometimes of the 'herring-bone' pattern, repeated in horizontal registers. Surfaces were also ornamented with ribbons of clay, often marked with the finger-nail or pinched up in regularly spaced projections.

Vessels display a wide range of form, including ovoid, spheroid, carinate, cylindrical, and 'barrel' shapes. Bottoms are flat, concave, rounded, or pointed; and shoulders bear horizontal lugs or vertical loop handles. Large jars with everted rims occur, as do graceful flasks with well marked necks and flaring mouths; a 'fruit-stand' type on a high perforated pedestal closely resembles specimens found in Japan (figs. 6-7). Two forms very characteristic of the northern Chinese Neolithic ceramics (except in the province of Kansu) are the earthenware tripods known respectively as the *ting* and the *li* (fig. 8).

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The *ting* calls for little comment ; it is merely a bowl raised on three solid legs. In the *li*, the legs are hollow, and form extensions of the interior cavity of the vessel ; this type was perhaps used for sacrificial purposes.

Among other earthenware objects are whistles ; phalloi ; and what appear to be highly conventionalized birds' heads ; these were perhaps all of them cult-objects. Kilns for firing pots have been found, and also large quantities of a vitreous and vesicular greenish slag apparently connected somehow with pottery making.

The wares described above are those which in a general way characterize the Neolithic culture of northern China. Another and far higher type, whose distribution and nature imply a Late Neolithic intrusion from the west, is the painted pottery* (fig. 9).

Polychrome wares are known from many sites of western Asia and eastern Europe. Similar pottery has now been traced along the great trans-continental migration route, from Chinese Turkistan¹⁰ across northern China proper, clear to southern Manchuria. It did not however spread over the entire area occupied by the Chinese Neolithic, but is much more restricted in distribution. It has been found almost exclusively in the loess regions. While the evidence is not yet conclusive either way, it appears to show that the painted ware was diffused along what were in historical times the principal routes of travel, while the Neolithic sites on which it does not occur are those in the more secluded localities.

Unless a well-developed trade can be proved, the appearance of a new type of pottery in a given region usually betokens successful invasion. For this, in China no evidence has yet appeared. It is only the presence of the painted ware itself that differentiates certain sites from others where it is absent. Nevertheless, its comparative homogeneity from end to end of its vast territory suggests that the polychrome ware was diffused over northern China by some process more rapid than mere culture-creep, though what that process was, we cannot say.

Remarkably rich in ceramic forms, the Chinese painted pottery is

* This was first made known to the world, slightly over a decade ago, by Dr J. G. Andersson, then connected with the Geological Survey of China.

¹⁰ Painted pottery of the Chinese group, in a Neolithic association, has recently been reported from the vicinity of Urumchi and Hami, in Chinese Turkistan, by Dr P. L. Yüan, of the Sino-Swedish Central Asiatic Expedition. It had previously not been known to occur west of Kansu.

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well levigated and fairly hard in texture ; in colour it varies from buff to dark red ; and it is often highly burnished. Several different designs occur, among them the ' lattice ' and the ' dot-and-triangle ' patterns ; no zoomorphs have been found on Chinese Neolithic sites. The painting is often in black, or in black and white, on a deep red ground ; or it may be in red and black on a white slip. It seems to have been done with some sort of brush.

Another distinct class of Neolithic pottery recently brought to light in northern China is a fine black ware. In this the surface is plain and highly polished, being sometimes actually lustrous. Some specimens are almost incredibly thin ; one, a broken cup excavated under scientific conditions,¹¹ measured less than half a millimetre in thickness—little more than that of an ordinary playing-card. No trace of metal has been found with this ware, the associated culture being of the usual northern Chinese Neolithic type.

The scanty evidence available suggests that the black ware may be slightly later than the painted pottery, or at least that the two overlap ; possibly also the black type is more especially characteristic of north-eastern China.

Whether the potter's wheel was already known in China in any form during Late Neolithic times is still a debated question. Apart from what appear to be definite indications of its use, it would seem *a priori* that in a large number of instances some mechanical means of shaping must have been employed ; this applies especially to the very thin specimens of the black ware, and only less so to much of the painted pottery. The question needs more study before it can be answered decisively.

Of the social organization and religious beliefs prevailing in China during Neolithic times, we necessarily have little direct knowledge. Hence we can only try to reconstruct them, in a measure, from the practices of the more backward peoples still inhabiting southeastern Asia ; from the archaeological evidence ; from ancient literary notices ; and from survivals among the Chinese peasantry themselves, the lineal descendants of the Neolithic people.

That the latter traced descent through mothers, and that women played an active or even a leading part in institutional life, seems fairly certain. No inference can be drawn as to the existence of chieftainship, either male or female ; but sorceresses, mediums, and priestesses have

¹¹ By Dr Li Chi, of the Academia Sinica.

PLATE I



FIG. 3. NEOLITHIC DWELLING-SITE, SHANSI PROVINCE, NEAR MOUTH OF FEN RIVER. See p. 304

PLATE II.



FIG. 4. PIT-DWELLING SHOWING DOMED ROOF AND CIRCULAR FLOOR-PLAN. (See p. 107.)

PLATE III



FIG. 5. SMALL STONE HOES. (See p. 394)
The left one from the collection of S. E. Wilson, Esq., Tallin, Shand.
The right one measures 108 mm. in its greatest length.

PLATE IV



FIG. 4. CHINESE NEOLITHIC JARS. (See p. 398)
(weight, just under 30 gm.)

PLATE V



FIG. 5. CHINESE NEOLITHIC JARS. (See p. 398)
 Left : with neck and flaring mouth; height, 44 cm. Right : pointed bottom and collar, and horizontal lip; height, 41 cm.

PLATE VI



(Height 24 cm.)

FIG. 8. TYPES OF *LA* TRIPOD, WITH HOLLOW LEGS. (See pp. 398-9)



(Height 28 cm.)

PLATE VII



FIG. 9. PAINTED NEOLITHIC POTTERY FROM KANSU PROVINCE. (See p. 399)
 The right-hand jar of 9B is from the beginning of the Ch'ia-shan-shih Period (note asymmetry)
 After J. G. Anderson, *Archaeological Research in Kansu*



FIG. 16. HUMAN REMAINS IN A NORTHERN CHINESE NEOLITHIC PIT DWELLING; POSSIBLY INDICATIVE OF SACRIFICIAL RITES
(See pp. 101-2).

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always wielded vast influence in Chinese peasant life, and there is every reason to believe that they did so in Neolithic times as well. Social groups were, however, probably governed far less by individuals than by the power of immemorial custom ; exactly the same is true of most of China at the present day.

Religion, as among so many planting peoples, seems pretty clearly to have been based upon the idea of fertility in general. While ghosts, spirits, trees, rivers, mountains, the heavenly bodies, and various natural phenomena were regarded as potent for good or evil and therefore to be placated, the central figure in the prehistoric peasant cults was perhaps a Goddess of Earth, looked upon as the supreme source of all fecundity and generative power. Of such a belief we have little concrete evidence ; for even the nude female figurines in clay, believed to represent a similar concept in so many other lands, have not been found in China. But in the earliest records there appears a Goddess of Earth, whose worship among the peasantry was conducted by sorceresses at least until the 2nd century B.C. That the Chinese Mother Goddess¹² was regarded as possessing human form is doubtful ; for apart from the absence of cult-figures already mentioned, the written symbol used to denote her in early historical times was not anthropomorphic in character.

Ceremonies for the promotion of fertility pretty surely included seasonal dances and orgiastic mating festivals like those which have survived in so many parts of eastern Asia until recent or even modern times. Earthenware phalloi occur on Neolithic sites, and traces of phallicism still exist in China and many adjoining lands. Marriages, initiated at such festivals, were probably exogamous ; that is, they could only take place between individuals or perhaps groups belonging to different matrilineal clans ; such at least appears to have been the practice in the peasant communities of the early historical period.

The cults of planting people are often bloody and cruel.¹³ Those of the Neolithic Chinese appear to have formed no exception. It is likely that they practised a rite of human sacrifice, apparently by clubbing, to judge from the crushed and mutilated condition of some of

¹² Although her proper designation may perhaps best be translated as ' Ruler of the Soil ', in the early writings she is often called ' Mother of All '.

¹³ A classical instance is that of the Khonds of Orissa, with their Meriah sacrifices ; that similar practices once prevailed over great part of southern and eastern Asia is highly probable.

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the skeletons found¹⁴ (fig. 10). Legends of the Andromeda type, so widespread over eastern Asia, point to the former existence of sacrifice by exposure. The occurrence of ritual cannibalism cannot be asserted with assurance, although the condition of the skeletons just mentioned would rather suggest it ; but it is often found in connexion with human sacrifice among planting peoples, and belief in the magical efficacy of human blood and flesh has persisted among the lower classes in China throughout her history.

The dead were disposed of in Neolithic China by inhumation. The position of the body varies ; sometimes it lies on its back, sometimes on its face ; or again, it may rest on its left side. Only in instances like those mentioned in the preceding paragraph have human bones been found piled up helter-skelter, broken, crushed, and with scarcely any two in normal articulation. So far, there is no evidence that cremation was practised in prehistoric China.

That anything like organized warfare existed is unlikely. The headless skeleton of a youth found buried in a pit-dwelling may mean that head-hunting was carried on. It has been suggested that the greater degree of variation found in the skulls of females as compared with those of males may point to the capture of women. But in general, warfare must have been of the desultory and haphazard type common among Neolithic populations nearly everywhere. The comparative scarcity of weapons and the absence of fortification point to the same conclusion.

The rarity of objects or materials imported from a distance implies that trade was little developed. Communities must have been very nearly self-containing ; probably for each the world was bounded by its own visible horizon. This same parochial outlook survives scarcely altered among the Chinese peasantry of the present day.

It was the northwestern province of Kansu that witnessed the highest development of prehistoric culture yet found in China. There the proportion of the painted pottery to the old coarse ware is far larger than elsewhere, while at the same time there is the closest resemblance to the polychrome types of the west. Only in Kansu, too, has a Chalcolithic phase of culture been found ; everywhere else in China

¹⁴ Animals, notably the gayal or mithan, are still sacrificed by clubbing to death in Farther India, and men were slain there in similar fashion not so very long ago ; the underlying motive appears to be the avoidance of any loss of blood, supposed to be of magical fertilizing efficacy.

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there seems to have been superposed directly upon the Neolithic a well-developed Bronze Age civilization, most of whose fundamental traits are those of the same cultural stage in the Occident.

The painted pottery of Kansu falls into two distinct categories, marked by radically different shapes and designs. Both classes retain the same stone implements throughout; but one—the later, as excavation has shown—displays a knowledge of copper, slight at first but steadily growing in amount. Nothing suggests that this was an indigenous development, and the contrary is far more probable. For along with copper, there appear in Kansu several other previously unknown culture-elements. Among these are the construction of mud walls around villages; new species of domestic animals—the sheep and perhaps the horse; and possibly wheeled vehicles. Zoömorphs now appear on painted pottery; among them, friezes of conventionalized birds recall designs occurring far earlier at Susa. The presence of turquoise, and even more of cowry shells, obtainable only on distant tropical coasts, indicates a considerable development of trade. The appearance in Kansu, during its Chalcolithic period, of the pottery tripods, the *ting* and *li*, already mentioned, points to contacts of some sort with regions farther east. Evidently we are here in the presence of something differing widely from the ancient and static culture of Neolithic eastern Asia.

That the Chinese New Stone Age dates back at least three or four millennia before the dawn of history in that country seems fairly clear. It is still more certain that a long time elapsed between its commencement and the appearance of pottery of the polychrome class. For on the higher and therefore older river-terraces of the northwest occur Neolithic remains without painted pottery, while the latter appears on the lower and younger terraces.¹⁵

In southwestern Asia the making of painted wares goes back well toward the beginning of the fifth millennium B.C. at latest. When it first appeared in the steppe regions north of the mountain zone, we do not as yet know; but the destruction of some of the sites on which it occurs there and the consequent dispersal of its makers seem to have taken place somewhere around 2600 B.C.¹⁶

¹⁵ Verbal communication from Dr P. L. Yüan of 3 March 1933.

¹⁶ Regarding this dating, see Harold Peake and H. J. Fleure: *The Steppe and the Sown* ('Corridors of Time' series), pp. 40 and 44.

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It appears certain, for various reasons, that the full Bronze Age complex reached China, somewhat abruptly, during the former half of the second millennium before our Era.¹⁷ Now the archaeological evidence indicates that painted pottery was known in China for at least two or three centuries before the close of her Neolithic. Its introduction there must accordingly have taken place toward the close of the third millennium B.C., or at all events during its latter half.

The Bronze Age civilization of China remained throughout its duration the nearly exclusive property of a small and warlike class of nobles—landholders, rulers, priests, and fighters. Bronze was almost wholly reserved for the uses of war, luxury, and worship; at no time was it sufficiently plentiful or cheap to be used as the common material for ordinary tools and implements. There is no evidence, archaeological or other, that its introduction greatly modified the ancient Neolithic culture of the peasants. For their simple needs stone was quite adequate, besides being so much more easily procured, and they seem to have retained its use through the greater part of the Bronze Age. Although the painted pottery disappeared,¹⁸ the old coarse ware continued to be made. The extraordinary abundance of remains strewn about on the present surface of the soil affords good evidence of the late persistence of the Neolithic in China. This receives further confirmation from the use of the written symbol for 'stone' in the composition of many characters denoting the actions of cutting, hacking, and piercing.

Iron began to be used in China around the middle of the first millennium B.C., at first for domestic utensils and farming implements; as the material for these, it appears directly to have superseded stone. In this sense it may be said that the peasantry of China never went through an age of Bronze at all, but passed from the Late Stone Age at once into that of Iron.

¹⁷ For a discussion of the evidence bearing upon the chronology of the Chinese Bronze Age, see C. W. Bishop: 'The Chronology of Ancient China', *Journ. Amer. Oriental Soc.*, 1932, LII, 232-47.

¹⁸ It survived in China itself until toward the close of the second millennium B.C. and possibly a good deal later; in Manchuria varieties of it were being made apparently not long before the beginning of our Era.

Ostia in the Light of Recent Discoveries

by GUIDO CALZA

Director of Excavations, Ostia

TWENTY years have gone by since I was first appointed Director of Excavations at Ostia, and I feel that I have devoted the better part of my activity as an archaeologist to the great task of bringing the dead city back to life.

All that was known about Ostia when scientific investigation was first started there was the legendary tale of its foundation at the mouth of the Tiber by Ancus Marcius, fourth King of Rome ; its probable expansion under the republic, although the growth of Pozzuoli and the clogging up of the river's bed would support the theory of a period of decline for Ostia at that time ; and its tremendous development under the Empire, especially in the second century. Of this there was proof in the vestiges of imperial constructions rising above ground and in the historically ascertained fact that Ostia was Rome's trading centre and outlet on the sea. Little or nothing was known of the later period of the city, nor of its decline and final disappearance.

On the other hand the existence of Ostia was never quite forgotten and certain medieval acts of vandalism, together with partial explorations effected after the year 1500 and a few attempts at scientific research ordered by the Papal Government, did throw light upon the extension of the old Roman city and gave inklings of its prodigious wealth.

The first modern campaign conducted in view of possible historical and archaeological results had, as chief object, to glean something of the topography of the city, retrace the course of streets, piece together the ruins rising above ground and isolate important monuments and edifices. Twenty years ago barely four or five streets had been uncovered in part, six or seven acres of land had been explored and not more than six buildings brought to light. The results today are : forty roads uncovered, some forty-nine acres of ground thoroughly explored, and over one hundred buildings unearthed and restored. Ostia is now a city risen from the dead, alive with memories which speak

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of past splendours, and no longer a desolate waste of land with ghost-like ruins peering above ground here and there.

We may now affirm that the town extended along the banks of the Tiber as far as the sea and that the main thoroughfare or *decumanus* ran parallel with the river and crossed the *cardo maximus* at right angles in the Forum.

The ground-plan is that of a Roman colony, with straight regular roads and houses evenly distributed along the roadside, very similar to modern cities. In this respect Ostia must have appeared ultra modern even in imperial times, if compared, for instance, with Pompeii, where streets were narrow and houses scattered about without heed to symmetry. An ancient inscription from Ostia (C.I.L. XIV, 352), mentioning a fifth region of the city, enabled me to trace the ground-plan of the five districts into which the town was divided.

The importance of imperial Ostia, as a source of data for the life of the Great Empire, becomes more and more evident as public and private houses come to light. Temples, among public buildings, are especially interesting, particularly those dedicated to Mithras, as giving a fairly good idea of the intense religious life which developed at Ostia through countless different cults, eastern and traditional, until the advent of Christianity. Of this there remained few but unmistakable traces, mainly due to the fact that Saint Augustine and his mother Saint Monica lived there for a time.

The chief interest of the Theatre, which is one of the very few built on level ground, lies in the entrance, which is in the very centre, an uncommon feature. The number of thermal establishments stresses the Roman craze for bathing; the baths recently unearthed near the Forum were supplied with special rooms for sun-baths. Even greater interest is aroused by a hitherto unknown type of architecture, revealed by the *horrea* or public store-houses, of which there are several well-preserved examples at Ostia.

Private houses were built upon what we should call modern principles, with several storeys, a type of building which was only exploited by the Romans after they had replaced the Pompeian system of illumination through inner courtyards, with windows looking into the street.

These are a Roman invention, in consequence of which came a new type of dwelling which later developed into apartment-houses (*insula*) for the middle classes, rising side by side with the rich and noble *domus*. Each builder, naturally, planned apartments, windows, balconies and

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staircases upon designs of his own, and one of the large blocks recently unearthed is unmistakably the forerunner, in architectural style, of the great palaces of the Renaissance. What is left of decorative motives is no less interesting, for it reveals that certain patterns considered typical of Byzantine or Romanesque art are purely Roman. Thus a visit to Ostia not only serves as a reminder of the past, but also furnishes evidence upon the Latin origin of certain architectural features which it is customary to consider as modern devices for the solution of problems brought about by the present-day overcrowding of urban centres. As time goes by and work progresses we find that dead cities are not only alive because their past has been resurrected, but, chiefly, because of their living links with the present.

Historical and archaeological data supplied by Ostia is rendered all the more rich and vivid by an artistic setting of documentary and aesthetic interest; mosaics, paintings, stucco-work and terracotta wares are profusely scattered everywhere, and although mural decorations of the second and third centuries have no special style of their own, as is the case at Pompeii, their interest is due to the medley of elements inherited from earlier periods, and ingenuously harmonized by these unrefined Roman artists.

Mosaics are numerous and very original; indeed they reveal considerable study and research, especially in the case of certain geometrical patterns found in the most humble dwellings, which are unlike others seen before. The variety of motives is remarkable. Among the large pieces is the now famous one with Neptune in the baths on the *Decumanus*, dated to the Antonine period. It covers the entire floor of the entrance hall, and depicts sea-horses, tritons, nereids and other strange vividly represented creatures. The twelve signs of the Zodiac are rendered with extraordinary accuracy of detail and mastery of design. Several mosaics in the square of the Corporations are worth particular mention for their subjects and execution; they are the signs used by commercial corporations, shipping companies and other trades, laid out on the pavement, before the entrance to each shop. Their chief interest lies in the fact that, besides the trade-mark, each bears a sign indicating the nationality of the tradesman, and therefore is unique. (PLATES I-II).

Originality, however, is not a term applicable to sculpture, for in this field almost everything that has come to light at Ostia is a copy from Greek models. A certain individuality is revealed by portraits, for the Romans excelled in this art, which drew upon their keen sense

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of observation and their knowledge of technique. A portrait of Trajan from Ostia, is the best in existence of the *optimus princeps*, and that of a young princess of the Julio-Claudian family, disguised as Artemis, is also a remarkable piece of work. The large statue of Rome, placed by the people of Ostia in the Temple of Rome and Augustus in the Forum where it was worshipped, is quite characteristically Roman and unlike any other Graeco-Roman sculpture known to this day.

The art which sprang up at Ostia, therefore, was not provincial art, nor could it have been, with Rome so close at hand and Ostia's enormous wealth to draw from. It is, rather, the work of first-rate artists who were presumably quite lavishly paid by prominent citizens of the colony, and is therefore useful as furnishing elements for the study of art as expressed in the capital.

This brief survey of historical and archaeological data which Ostia offers to the student, provides indication of the far vaster interest which the city holds for anyone ready to delve deeper among its ruins in search of life and art. Ostia is not a copy of Pompeii or Herculaneum, nor a duplicate of the many Roman towns of Latin Africa from all of which little that is unknown is to be gleaned. It is, rather, a small-scale reproduction of what Rome itself really was in its hey-day, with the added charm that Ostia has preserved many typical features of the architecture and taste of that period, which have long since vanished in the imperial capital.

There are private houses, shops, store-houses, buildings for public use, sanctuaries and temples of long-forgotten eastern cults; there are mosaic paintings, stucco decorations and sculptures in most cases far better preserved than those found in Rome, and which supply missing links for the reconstruction of the history of a people.

Moreover inscriptions brought to light at Ostia supply invaluable data for the social and economic aspects of Roman daily life, and have entirely solved problems connected with the history and positions of the Roman colony on the sea. Further excavations will, no doubt, yield more interesting material, and probably reveal the existence of other monuments, and so give more documentary evidence upon the glory of Rome.

The tombs of Ostia belong to the less well preserved of the ruins but now we have been fortunate enough to find a complete necropolis not far from Ostia, and through it we are able to recognize a great part of the life of the first colony of Rome.

The recent discovery of a vast Roman necropolis at the mouth of



MOSAIC FLOOR WITH REPRESENTATIONS OF SHIPS, OSTIA
p. Anderson

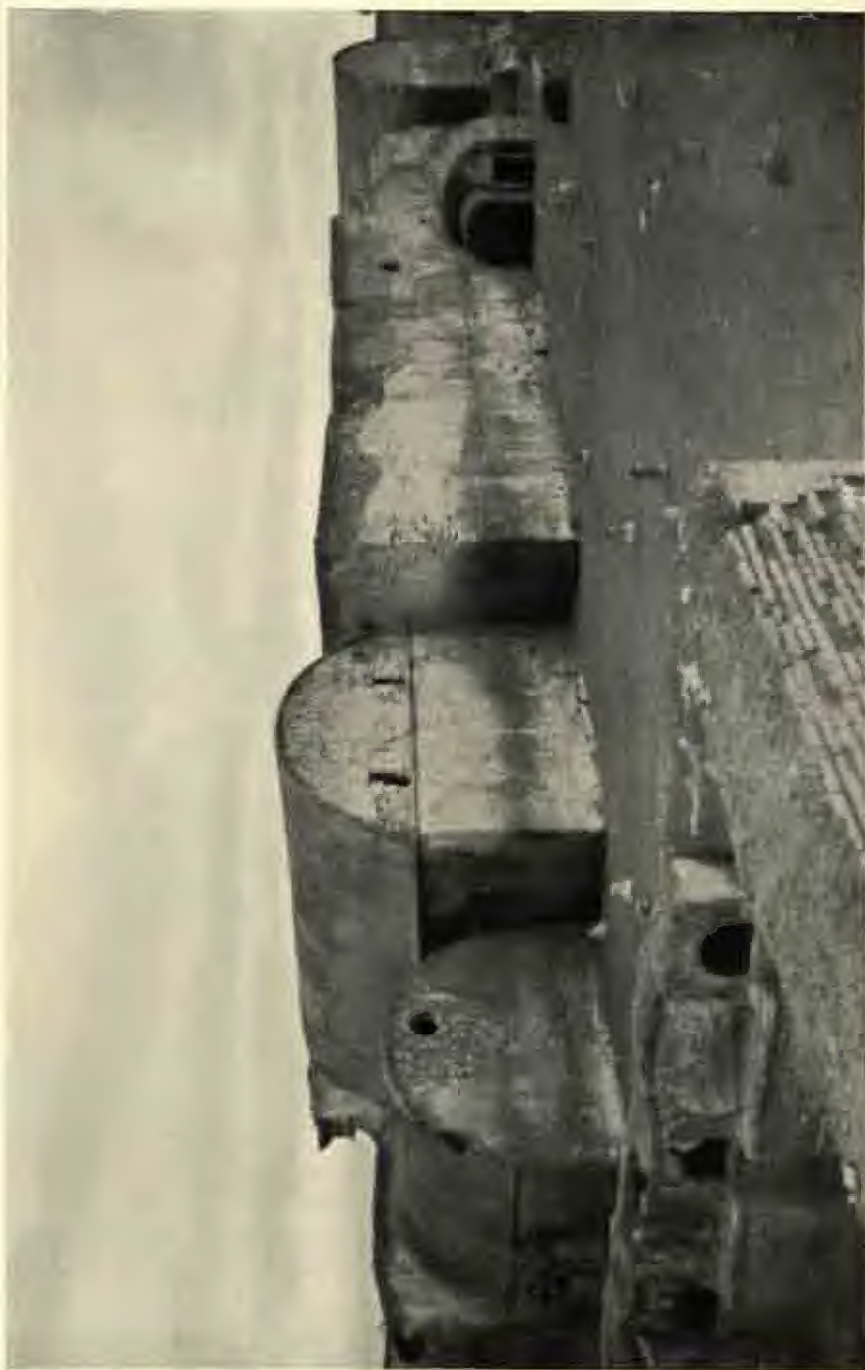
PLATE II



MOSAIC FLOOR WITH REPRESENTATION OF A LIGHT-HOUSE, OSTIA

Ph. O. G. S. Crawford

PLATE III



TOMBS AT OSTIA, SEEN FROM THE BACK
Ph. O. G. S. Crawford

PLATE IV



PUBLIC LAVATORY, OSTIA
Ph. Anderson

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the Tiber, in a triangular stretch of land known throughout history as 'Isola Sacra' (sacred island) enclosed between the course of the river, an artificial canal dug by Trajan, and the sea, is of the greatest importance to the history of Ostia, as well as to that of the later port itself, which was given the pompous name of Portus Romae at some time in the third century.

The principal feature of the necropolis is the architecture of the tombs and their variety and their decoration. The burial-ground as a whole is of the second to fourth centuries A.D., as shown by dates on the inscribed tablets found on almost every tomb with the name and the age of the deceased. Large chamber-tombs generally have decorations in relief on the architrave over the door, and are in excellent style, not unlike good Tuscan cinquecento architecture. (PLATE III). Niches in the interior were used to receive the ashes of servants and slaves, masters being buried in full-sized sarcophagi, placed along the walls. Like the vaults, these niches are decorated with mythological paintings, very primitive and obviously the work of unskilled and untrained hands. Reliefs placed outside several tombs were intended to indicate the profession of the deceased.

Sarcophagi, however, are the most remarkable of the finds. A lid of uncommon size, supporting the reclining figure of a priest of Cybele, entirely preserved, whose sacerdotal robes and symbolic ornaments are of special interest to students of ancient cults, has received universal attention. Dancing children, or cupids, sculptured in high-relief on a marble sarcophagus of a child, miraculously intact, save for the figure on the lid, are so admirably designed and executed as to recall the work of such great masters as Nicolò Pisano or Donatello. Among notable sculptures are Hellenistic marble groups representing Pan and a satyr, a child on horseback followed by a servant, statuettes of a child, and of a genius; also reliefs showing scenes from life, such as child-birth, the bleeding of a leg, a blacksmith's shop, a corn-mill and a water-carrier. A marble bust of one Caius Volcacius Myronius, is in its way, as remarkable a discovery as the sarcophagus with the priest; the admirable expression of the face, which must surely have been an astonishing likeness, and the perfect technique would place this portrait in an even better period than the Antonine, to which for other reasons it must unquestionably be dated.

Is Prehistory Practical?*

by V. GORDON CHILDE

Abercromby Professor of Prehistoric Archaeology, Edinburgh University.

IN 1933 it can hardly be alleged that Prehistory is a useless study, wholly remote from and irrelevant to practical life. In one great country at least, interpretations of supposed facts of Prehistory, imperfectly apprehended by an untrained mind of undoubted genius, have revolutionized the whole structure of society. No one who has read *Mein Kampf*, or even the extracts therefrom in *The Times*, can fail to appreciate the profound effect which theories of the racial superiority of 'Aryans' have exercised on contemporary Germany. In the name of these theories men are being exiled from public life and shut up in concentration camps, books are being burned and expression of opinions stifled just as, in the name of religious ideas, they were during fifteen long centuries of darkness.

The suppression of thought during the Dark Ages was justified by an appeal to supposed revelations, vouchsafed to individuals, and the interpretations thereof. The latest onslaught on the freedom of the spirit appeals to alleged scientific facts. The justificatory documents this time actually exist in the public world—in museums and in the fields—open to every competent observer to examine, analyze and compare. But these documents can no more be profitably studied without laborious preparatory training than can the movements of stars or the behaviour of electrons. Prehistory in its several branches is just the objective and critical study of precisely those data upon which the political theories of Houston Chamberlain and Adolf Hitler purport to be built. But for the purpose of such systematic study the several sciences which compose Prehistory have had to elaborate an exact terminology, and in so doing have often defined a given term in a different way to vulgar speech and sometimes even differently to colleagues in allied disciplines. The layman may well be pardoned if he takes these technical terms at their face value, but the resultant confusion may have disastrous effects.

* Introductory lecture to the University course in Prehistoric Archaeology for 1933-4.

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Confusions between the several senses of 'race' and 'heredity' are particularly dangerous. 'Inheritance' is originally a legal term describing the transmission of property from father to son. The zoologists have appropriated it to a biological process and define heredity¹ as 'the resemblance between an organism and its ancestors, in so far as the resemblance is not due to similarity of environment'. 'Race', at the beginning of last century, was applied fairly indiscriminately to any group of men or other animals distinguished by common peculiarities, whether of bodily form or of speech or even religion; it was seriously debated whether language were not the best criterion of race.² Zoologists restrict the term to groups possessing common hereditary qualities in the biologist's sense, and stock-breeders and physical anthropologists have tried to follow them.

Now what interests us chiefly in the case of the lower animals and particularly domestic ones are the physical differences between breeds or races—differences in the quantity and quality of their wool or in egg-laying capacity. The breeder and the experimental zoologist have shown that such differences are not due to any deliberate effort on the part of the individual sheep or hen, but to differences in the germ-plasm transmitted in the stock to which the creature belongs. To 'improve' your flock or your poultry all you can do is to select and couple animals possessing the qualities you regard as desirable, in the confident belief that these qualities will reappear in the offspring. 'Racial hygiene'³ is the portentous name given to an attempt to apply the same principles by analogy to man. But is the analogy not perhaps a false one? Are the qualities valuable in humanity strictly analogous to those valued by man in poultry? And are the same methods of propagation applicable?

Man is undoubtedly an animal, descended from some ape-like creature. But *qua* man he is distinguished physically from all other animals by possessing a very complex brain and nervous system, rendering possible infinitely delicate adjustments between the sensory organs and the muscles. He can make tools with his hands, he can utter

¹ *Encyclopaedia Britannica*, last ed., s.v. HEREDITY.

² See T. Simar, *Étude critique de la doctrine des races au XVIII^e siècle et son expansion au XIX^e*, Brussels, 1922.

³ To be distinguished from eugenics in so far as the latter aims at weeding out specific hereditary defects and pathological conditions which can be readily and accurately diagnosed, and the heredity of which can be precisely determined since the defects in question are dependent on single genes.

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articulate sounds. As a consequence he is in quite a different position from all other animals. As a protection against cold or enemies the other animals have to rely upon the fur or the horns conferred upon them by heredity (in the biological sense). Man alone can kindle fire and manufacture clothes to keep him warm, can fabricate weapons for his defence. These things—fire, clothes, weapons—are part of man's 'culture', external to his body, to be made and discarded at will. He only acquires them after birth, whereas a tendency to grow fur and claws is innate in a cat which cannot discard them at will. Only by mutations in the germ-plasm could a better equipped animal arise, which as the result of processes of natural selection might become after many generations the parent of a new race or even species.

All animals, including man, come into the world with their nervous systems attuned to react in specific ways to external conditions. Most animals, again including men, can learn by experience to modify such so-called instinctive reactions. But neither man nor any other animal can hand on to his offspring by heredity the newly learned modifications. Acquired characteristics are not inherited.⁴ But certain animals can by example train their own offspring to react in the manner they have found advantageous. Only man, owing to his power of articulate speech and to the prolongation of infancy, can transmit to his descendants integrally what he has learned by experience in his own lifetime. A human child does not therefore start adult life at the same point as its parents but already armed with some of the fruits of their experience. In other words the child's equipment inherited from his parents in the biological sense has been enlarged by instruction or social heredity, by acquired ancestral experience. Human capacities are thus being augmented from generation to generation by instruction in skill acquired in the past.

Moreover, by speech men are enabled not only to pass on to their children the results of their own individual experience—they can communicate them to one another. One can tell his fellows what he has seen and done and can learn in return the experiences and inventions of his neighbour. Put briefly—experience can be pooled. There thus arises a collective tradition embodying more or less the pooled experience of mankind.

This tradition embraces *inter alia* the various ways of acting and

⁴ Prof. Macdougall's rats, the most recent experimental supports of Lamarckianism, seemed less convincing after a statistical study by Prof. Crew at the British Association meeting in 1933.

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making things that the component individuals of the species have discovered or invented. Material culture is just the concrete embodiment of this tradition, and the proper subject-matter of archaeology. For perhaps half a million years man has been leaving on the surface of the globe the products of his hands, the concrete expressions of his intelligence, the particular embodiments of his traditional arts and crafts. The archaeologist studies and classifies these. He can then compare the changes in man's material culture—his social heritage—with the changes in his physical structure—his biological heritage.

A reasonably clear record of the physical characters of our species extends over only some 20,000 years. During that time the physical structure of man—at least his skeleton, many of his muscles and such part of his brain as leaves impressions on the walls of the skull—has undergone only relatively minor modifications. In the same period his material equipment has been revolutionized, his control over his environment incredibly enlarged. Twenty-five millennia ago all men of whom we have any knowledge were just *gatherers*, living on the wild fruits and game native to their territory, dwelling in caves or rude shelters and equipped with a strictly limited range of tools and weapons made exclusively of stone, bone, horn and wood. Today we are nourished by plants and animals, deliberately cultivated and bred on artificially irrigated and fertilized lands and conveyed to us from great distances with incredible speed ; we dwell in huge cities drained and lighted by electricity and we control complex machines of metal that can exert a power excelling that of thousands of human bodies.

From the standpoint of geology or zoology the time occupied by this transformation is trifling ; but it is a transformation in culture, not in hereditary physical structure ; in external equipment, not in the germ-plasm of the species. In other words man's exceptionally rapid 'improvement' is due to that accumulation of experience and tradition rendered possible by speech, and subsequently accelerated by writing, not to accumulated mutations in his biological make-up. What is true of material culture, which the archaeologist especially studies, applies equally to so-called spiritual traits such as Science or Art. If he took a wide enough view, the historian could easily show how the achievements of a Newton or an Einstein rested upon a substructure built up laboriously by 5000 years of collective effort ; he could trace the tradition of mathematical techniques down from the remote hunter who perhaps first distinguished the notches on his tally as abstract numbers, through the Babylonian scribes who for the administration of

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vast temple-revenues devised the processes termed multiplication and division, the handling of fractions, the extraction of square roots and the determination of areas, to the Greeks who generalized the rules used by their oriental precursors (such as the Theorem of Pythagoras) and so to the calculus and relativity.

Progress in the case of mankind has accordingly been not so much an 'improvement' in the bodily structure that each man inherits from his parents, as a steady accumulation of the cultural capital, a gradual enlargement of the traditional experience that a man acquires from his social environment after birth. This fact prompts the question, whether the aims of the stock-breeder are strictly applicable to humanity at all?

But even if they are, it may be questioned how far the stock-breeder's methods are applicable to mankind. All 'modern' men, despite their well marked physical differences, belong to a single species and can interbreed freely. From the last Ice Age onwards the variety of skeletal types found in Europe suggests the possibility of extensive interbreeding, at least in our continent. A study of the blood-groups, recognized only since the war, is held to prove that such interbreeding has actually taken place, and that the populations of Europe, North Africa and Hither Asia at least are by now thoroughly mixed.³ Now the mechanism of biological inheritance and the statistical rules governing the hereditary transmission of characters in cases of interbreeding, though outlined by Mendel in 1866, have only been worked out in detail within the last thirty years and are still little known outside biological laboratories and institutes. The hereditary constitution of any organism is believed to be determined by factors, technically termed 'genes', received in pairs from its parents at birth, each parent contributing one to each pair.⁴ Each gene is regarded as predisposing the organism to develop a certain hereditary trait. Thus there would be a gene (probably there are several) for long-headedness. In crosses between different varieties each pair of genes might represent a pair of alternative lines of development, but only one of the alternatives is realized in each concrete case. The offspring, however, carries both alternatives in his germ-plasm, and may transmit either to his descendants. Which alternative is to be realized is determined by rules of

³ Hogben, 1931, p. 126; cf. Ruggles-Gates, 1929, p. 295. 'There is no such thing as a pure or homozygous race of mankind'.

⁴ Morgan, *Theory of the Gene*, Yale, 1928; summaries in Ruggles-Gates and in Baur-Fischer-Lenz.

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'dominance' that can be discovered by statistical analysis of observed cases. For instance in a cross between a long-head and a round-head (assuming a single gene for head-form) the offspring would not be betwixt-and-between but round-headed or long-headed. The available evidence suggests that he would be probably round-headed as this gene is likely to be dominant, but he might none the less have long-headed children.

Furthermore the several hereditary traits or genes may be transmitted separately from parent to children. Stature, complexion and head-form are all determined by distinct genes (more probably by a large number of distinct genes). We have all met tall blonde long-heads, tall dark long-heads, short blonde long-heads and short dark long-heads that illustrate this sort of separate or particulate inheritance. Yet nineteenth-century text-books take the first and last combinations of characters as distinctive of the 'Nordic' and 'Mediterranean' races respectively.

Statistical studies of a large number of individuals have established very clearly the rules of dominance in fruit-flies and other quick-breeding organisms, and also the probabilities that groups of genes will be transmitted together in crossing. In the case of men, whose pedigrees are hard to ascertain, who breed slowly and sparingly and whose hereditary mechanism is exceedingly complicated, very little is yet known about the rules of dominance and hardly anything about the linkage of genes.⁷ Even if it be statistically probable that a tall long-head will be also blonde, that gives us no certainty as yet that a tall long-headed skeleton 5000 years old also belonged to a blonde man. And, Karl Pearson⁸ writes 'When we come to associate mental and bodily characters we find no correlation whatever of prognostic value'.

That statement should brand anyone who talks of 'racial mentality' as a charlatan. And in fact the researches conducted in biological laboratories have robbed the naive nineteenth-century conceptions of even physical race of most of their scientific value,

⁷ Baur, p. 67 : 'Difference in the shape of the skull, the structure of the brain . . . in a word the numberless morphological and physiological distinctions between the various races of man depend in each case upon very numerous heredity-factors, with the result that as yet we know little about the course of their inheritance'. Fischer, pp. 119 and 151, and Ruggles-Gates, pp. 42 and 323, point out the alterations in skull-form and stature produced by non-hereditary post-natal factors. Such alterations cannot be distinguished from hereditary traits in individual cases, though in large populations they might be discounted statistically.

⁸ *Annals of Eugenics*, 1926, 1, 405.

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though the results of those researches have seldom penetrated as yet into the anatomical galleries of the physical anthropologists. Until the workings of heredity in man have been far more exhaustively and dispassionately studied, and the idea of race re-established on a truly scientific basis, it is surely rash to give statutory sanction to nostrums based on false analogies between men and poultry.

In the light of the foregoing summary, it should be easy to dispel the popular confusion between race and culture or race and language—a confusion involved for instance in the phrase 'Aryan race', and in legislation using that expression. As there are varieties in the physical breeds of men—races in some sense—so there are varieties in human culture. The process of pooling experience, previously described as the basis of human progress, has not been proceeding evenly at all times and places. Mankind is dispersed over the whole surface of the globe and is divided into discrete groups by forests, mountains, deserts and seas—barriers to intercourse which have been very largely annihilated in the last fifty years by the steamship, the aeroplane, telephony and wireless. Before these inventions human groups were often very largely isolated, communication between them was difficult and sporadic, accumulated experience was very unevenly shared.

For the first 15,000 years (*i.e.* after say 25,000 B.C.) for which Pre-history has anything like adequate data, mankind probably lived in quite small communities, largely, but never perhaps entirely, isolated from one another. And such isolation has continued throughout history, though it has been increasingly broken down as a result of the cultural progress of the last 6,000 years. Each community tended under these conditions to build up its own peculiar tradition and material culture, based upon its own historically conditioned collective experience and its own geographically conditioned needs. And at the same time the conventional meanings given to the many groups of articulate sounds came to differ from community to community, producing the babel of tongues which has helped to accentuate geographical isolation.

The progress of linguistic divergence is only directly observable at a very late stage. But in the case of material culture, the divergence of tradition, in so far as it found concrete expression, is traceable by the prehistoric archaeologist. We can recognize groups of man-made objects—implements, ornaments, ruins of dwellings—belonging to the same general age but normally collected from distinct, but not necessarily remote, sites that differ from one another arbitrarily in respect of method of manufacture, material, shape and kind. Such differences

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clearly reflect differences in traditions of workmanship, of hunting, of fighting, of fashion in dress and so on. They are differences in the culture of distinct groups of men. Very often the bodies, or at least the skeletons, of the people who made and used these objects can also be studied, since the objects in question were often buried with their owners. But in many instances the skeletons, accompanied by the same sorts of implements, weapons and ornaments, belong to very different types ; they cannot possibly be classified as belonging to the same race or physical stock. The so-called ' Nordic culture ' of Europe in the third millennium B.C. is a case in point, since extreme long-heads and extreme short-heads, together with a wide range of intermediate types, are found accompanied by identical pots, axes, and beads in the same grave.* In other words, in the prehistoric past as obviously today, culture was independent of physical race, was not a matter of biological heredity but of social tradition.

Ignorance of this fact, or rather the careless use of the word race as coloured by biological theory for the prehistoric group distinguished by a peculiar culture, has naturally reinforced the false analogy between men and poultry in misleading the ' racial-hygienists ' and their political interpreters. If we replace the word ' race ' in this context by ' people ', we shall more easily avoid such confusions. After all, we speak of the British people as the group of conspicuously varied physical types who enjoy British traditions, institutions and culture.

Prehistoric archaeology is largely devoted to isolating such cultural groups or peoples, tracing their differentiation, wanderings and interactions. But the distinction of cultural groups and the differentiation of peoples is far from being the most significant or attractive thread running through Prehistory. Over against the processes of divergent development leading to the separation of distinct peoples—and confusion—can be traced no less clearly a process of convergence or, more strictly, diffusion. At least in the Old World the peoples accessible to archaeological study were constantly interchanging material objects, ideas and inventions. Such intercourse is conclusively attested in the archaeological record—least ambiguously of course in the wide diffusion of substances like amazonite, amber, callais, lapis lazuli, shells or tin, far beyond the restricted areas where they occur in nature. This diffusion of substances is only the grossest concrete expression of the diffusion of ideas, in fact of that process of pooling experience to which reference was made earlier.

* cf. *JRAI.*, LXI, 342, n. 3.

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It betokens the creation of a capital of knowledge and equipment, shared (albeit unevenly) by all peoples, to which all have been making their own collective contributions. What we call Civilization is the product of this collective tradition, transcending all national frontiers. Archaeology and written history agree that the principal contributions were made first by the peoples of the Ancient Orient—of Egypt, Sumer and the Indus valley—then by the Greeks and their Minoan forerunners, later by the Romans; but even the barbarian Celts and Germans, as Prof. Bury¹⁰ termed our more immediate ancestors, made contributions of their own.

European Prehistory alone can enable us justly to appreciate what our national ancestors did contribute to our cultural heritage. In an official invitation received by the writer to the opening of a certain museum last June the organizers explained that they had gathered together a representative collection of prehistoric Teutonic art and industry and 'hoped thereby to establish that Germanic art was the highest art of all time'. In other words handmade clay-pots, rather poorly baked and incised, not painted, are to be exalted over Attic vases and Chinese porcelains; the barbaric carvings on a pirate galley must excel the sculptures of the Parthenon! That is hardly the verdict of scientific Prehistory.

Objectively studied Prehistory will rather emphasize how much more precious and vital is the growth of the common tradition that leads up to civilization than the idiosyncrasies and divagations of any separate groups, however brilliant. To attempt to cut oneself or one's community off from this lifegiving tradition is to commit spiritual suicide. To admit as good only what is Celtic, or Germanic or Indian, as exclusive nationalism would demand, is unscientific and unhistorical.

BIBLIOGRAPHICAL NOTE

It is probably impossible to approach all the problems discussed above in a purely objective manner. Most of the authors cited in the footnotes are likely, as is the present writer, to be unconsciously biased by prejudices and passions that ought to be eliminated in scientific work. Of the works on heredity cited Baur, Fischer and Lenz, *Human Heredity* 1931, is a translation of a German text-book strongly in favour of 'racial-hygiene'. Ruggles-Gates, *Heredity in Man* 1929, is slightly inclined in the same direction. Hogben, *Genetic Principles in Medicine and Social Science* 1931, belongs emphatically to the opposite school.

¹⁰ *Cambridge Ancient History*, vol. 1 (2nd ed., 1924), preface to 1st ed., page v.

Ancient Glass

by D. B. HARDEN

Ashmolean Museum, Oxford

THE circumstances of the first production of glass are shrouded in mystery. The ancient authors give us little or no trustworthy information on the subject. Pliny the Elder,¹ our chief authority, tells us a strange tale which is credible neither from the archaeological nor from the technical standpoint. He says that a party of Phoenician saltpetre-merchants landed by the mouth of the river Belus in Phoenicia. They set about lighting a fire to cook a meal, and for want of stones on the beach they took some blocks of saltpetre from their cargo to rest their kettle on. The heat of the fire fused the sand and the saltpetre into a vitreous mass. The story is probably a pure myth. From a technical point of view it is extremely doubtful if an open wood fire on a beach would be sufficient to fuse the sand and the saltpetre; while from the archaeological standpoint it is certain that glass was known long before the Phoenicians were trading in the Mediterranean. The whole myth is based on the fact that in Pliny's own time—the 1st century A.D.—and for many centuries before, the sands of the Belus were widely used for glass-production. No author anterior in date to Pliny tells us anything at all about the origin of glass; later authors, even as recently as the middle of the 19th century, for the most part repeat blindly Pliny's story.

Let us see what is the evidence of archæology.

Glaze or vitreous paste as a coating for stone and clay was known and widely used in Egypt and Mesopotamia from the 4th millennium B.C. onwards. But despite this early knowledge of the use and value of glaze, glass objects for which an earlier date than the 16th century B.C. can even be claimed, much less proved, are few and far between. Some beads of the 17th Egyptian dynasty—the end of the 3rd millennium B.C.—are the only really certain examples.

¹ Pliny, N.H. xxxvi, 191.

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The first dated piece of glass is a bead in the Ashmolean Museum at Oxford which bears in hieroglyphs the name of Amenhotep I, the second king of the 18th Egyptian dynasty (1559-39 B.C.) and may, though it need not, be contemporary with that king. Not long after come two glass vases bearing the name of Thothmes III of the same dynasty, preserved, one in the British Museum (FIG. 1) and the other in Munich. But it is at the heretic Akhenaten's city of el-Amarna, at the end of the dynasty, about 1370-60 B.C., that glass vessels are first found in any quantity.

These earliest glasses were not blown. They were modelled on a sand-core, a much more laborious process. Professor Petrie, while digging at el-Amarna in 1891, was lucky enough to find the remains of several glass-workshops. The finding of crucibles in which the metal was fused, as well as fragments of the metal in various stages of workmanship, enabled him to decipher the processes involved.²

After the glass batch³ had been fused in clay crucibles and allowed to cool, the defective parts were chipped off and discarded and lumps of the metal³ were reheated so that it might be rolled out into rods. A core of sand was affixed to a tapering metal rod, and the vessel was modelled by winding the glass rods spirally round this core. The surface was then smoothed by marvering or rolling the glass on a smooth surface. If decoration was added to the glass, as it usually was, it consisted of threads of coloured glass trailed on the vessel and afterwards marvered in flush with the surface. Festoon effects were produced by combing the threads one way only; zigzags and herring-bones by combing in two directions (FIG. 2). When the vase was complete the metal rod and the core of sand were removed; examples of this early glass almost always show a coating of sand on their inner surface, an indubitable proof of the technique employed.

This process of manufacture was obviously slow and troublesome and at the same time ill fitted to the production of large vessels. Consequently we need not be surprised that glass vases were still comparatively rare and costly, and that they consist entirely of small goblets and scent or unguent bottles. Glass was still an article of luxury, comparable in price and rarity to gold and silver, as the author

² W. M. F. Petrie, *Tell el Amarna*, pp. 25 ff.

³ Glass-workers use the term 'batch' to denote the raw ingredients of the glass before fusing, and the term 'metal' to denote the unworked glass after the fusion of the raw materials.

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of the Book of Job (xxviii, 17) suggests when he ranks glass as the equal of gold and precious stones.

There was no change in the technique of glass-manufacture or in the type of vessel produced until, probably, late Ptolemaic times (1st century B.C.). About that time, in Egypt, the process of pressing into a mould as distinct from modelling on a sand-core came into vogue (though the older method was not finally discarded till much later), and this brought in its train new shapes and new decorative ideas. Bowls and dishes for table use could now be made. As the art was not fully developed until the 1st century A.D., it will be treated more fully below (p. 424).

The next development in the glass industry was the most revolutionary one ever made in the history of glassware, the invention of glass-blowing. Most unfortunately we do not know for certain either the date or the place of that invention, but we can pin both down within narrow limits. The discovery occurred either in Egypt or in Syria, and probably just before the beginning of the Christian Era.⁴

Pliny, who lived and wrote when the new process was spreading all over the Roman Empire, and who actually pretends to give a full account of glass and its working, says nothing about the time and place of this discovery. No blown glass has been found in Ptolemaic levels in Egypt or in Hellenistic tombs in Cyprus or Syria. On the other hand blown glass has been found in Augustan levels in many parts of the Roman world. These facts fix the time of the discovery. The place is more uncertain. It may be assumed that blowing into a mould was anterior to free blowing inasmuch as pressing glass into a mould was already a favourite technique. In Syria mould-blown glass with patterns is common in Augustan times, and moreover, the makers were so proud of their work that they often signed it (p. 424 below). Is it unwarrantable to conclude that these were the men who actually invented the process of blowing glass?

The new technique once started, its advantages were soon understood. The old techniques were tedious and only admitted of the manufacture of a limited number of shapes and sizes of vessel. The

⁴ Not long ago even archaeologists of repute maintained that glass-blowing was known in the time of the 12th Egyptian dynasty, if not earlier. They based this theory on the evidence of several paintings depicting artisans blowing through rods before a furnace, which are found in Egyptian tombs of various dates. This theory was disproved by Professor Griffith (*Beni Hasan*, IV, p. 6, pl. 20), who rightly identified the people as metal-workers and not glass-blowers.

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blowing of glass, on the other hand, is even superior to pottery-making in the speed with which vessels can be turned out ; while at the same time a very little practice and experience enables the worker to turn out an infinite variety of shapes and sizes. At last, then, glass could rival pottery in its popularity, and glass vases became as cheap as, if not cheaper than, their pottery equivalents.

But blown glass has another great advantage over pottery—lightness of weight—and this caused it to be adopted for the transport of fluids such as wine and oil from one end of the Empire to the other ; for, given suitable packing, there is no reason why glass should be any more liable to breakage during transit, even by sea, than is pottery. Glass bottles and unguent flasks of Syrian and Egyptian manufacture have been found in quantities in South Russia, Gaul, and Germany, and indeed in every part of the then known world. They were packed, like the modern Chianti and Eau de Cologne flasks, in plaited straw covers. An interesting mosaic from El Djem in Tunisia⁴⁶ shows a wine-bottle with such a cover, and actual examples of glass in covers have been found in Egypt.

After it had been invented in the East, the manufacture of ordinary blown glass rapidly spread westwards and factories had been established in Italy and South Gaul, if not further afield, by about A.D. 50. These factories were no doubt staffed at the start by migrating eastern workmen, but it cannot have taken long for western artisans to adopt the new technique from their eastern rivals. From South Gaul and Italy the centre of the western industry moved northwards in the 2nd century, and after that date the factories of North Gaul and the Rhineland were the outstanding competitors of Syria and Alexandria. That blown glass was made in Britain during the Roman occupation is probable. Supposed glass ovens of Roman date have been found at Wilderspool near Warrington,⁴⁷ and others quite recently by Mr Donald Atkinson at Caistor-by-Norwich.⁴⁸ And indeed nothing is more natural than that enterprising artisans should have migrated hither with their trade-secrets from the Amiens district.

A curious thing to notice is that, despite the localization of the industry in many parts of the Empire, the same fashions in shape and

⁴⁶ Musées de l'Algérie et de la Tunisie xv, Mus. Alaoui, Suppl. 1 (1910) pl. xv, 6, p. 22.

⁴⁷ T. May, *Warrington's Roman Remains*, pp. 37 ff.

⁴⁸ *Trans. Norfolk and Norwich Arch. Soc.* 1929, xxiv, 108-12.

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technique arise almost simultaneously in each quarter. This can only be accounted for by assuming a constant coming and going of workers from one part of the Empire to another. Most of the movement was probably in the direction of east to west, and there was probably constant migration of Syrian and Alexandrian workers to Gaul and Germany. But it is not impossible that in their turn the Gallic and German workshops inaugurated techniques which spread eastwards.

In consequence of this continual inter-communication and of the swift spread of new fashions and techniques it is not always easy, on western sites, to distinguish imported eastern glass from the local ware. Colour and fabric help to some extent in the case of the common wares. As regards common glass, the Syrian usually has a blue-green tint and is fairly light and thin. Egyptian glass tends to be sea-green or dull green, and to be of heavier texture. Gallic and Rhenish is more like the Egyptian than the Syrian in colour and texture, but usually has a brighter green colour and is not so heavy or thick-walled as the Egyptian. In the case of the better-class wares and the decorated glass certain small differences in shape and in treatment of decorative motives are usually present to help us.

Close dating of Roman glass is by no means an easy task. Most of the types and techniques were extremely long-lived, and in the present state of our knowledge it is often unsafe to hazard a date within a century, let alone a decade. It is perhaps best to adopt Morin-Jean's classification, elaborated in his book on Gallo-Roman glass,⁷ and to divide the glass into two groups, an early one, dating from the 1st and 2nd centuries A.D., and a late one dating from the 3rd to the 5th century. Such a division is arbitrary, of course, for there was no violent upheaval in glass-working round about the year 200, but it was during the late 2nd and early 3rd centuries that Roman glass-working reached its zenith, owing to the introduction of several new processes of technique and decoration, and it is therefore convenient to adopt this point as a dividing line.

The first of the two periods shows the gradual mastering of technical processes, and the development of the industry. The second shows at first the art of glass-making at the highest point it reached in antiquity, and then, later, a gradual decline in skill and attainment which is typical of the whole field of art and industry during the 4th and 5th centuries A.D.

It will perhaps prove interesting to give a short account of the

⁷ Morin-Jean, *La verrerie en Gaule sous l'empire romain*, 1913.

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chief shapes, varieties, and decorative processes that are typical of each of these periods.

In the first period the shapes are, as one might expect, simple and plain. FIG. 3 shows a typical group of common green blown glass of the 1st and 2nd centuries A.D. The examples all come from eastern sites but the shapes are similar to those of western fabric. The rims are either left plain, or are rounded in a flame or folded inwards. The bodies are usually simple bulbs, and only slightly fashioned with a modelling tool after being blown. Bottoms are concave, and elaborate base-rings and foot-stands are rare. Handles, too, are of elementary type.

Though plain-blowing was by far the most frequent, as it allowed of so many more forms and left so much more play to the inventiveness of the glass-worker, two other varieties of manufacture were prevalent during this period—pressing into a mould, and blowing into a mould. Mould-pressing was confined to bowls and dishes. FIG. 4 shows a group of vases, one monochrome and the rest polychrome, made by this process. They are, as one would expect, highly symmetrical, and they were also finely polished, as a rule, after being moulded. The glass is either colourless, monochrome (fine dark green, blue, or brown colours being predominant), or polychrome, made in one of the several varieties of the millefiori or mosaic technique.* Most of these fine bowls were doubtless made in Alexandria and exported thence to Italy and the west, but there is some evidence, in the shape of ingots of millefiori glass that have been found on western sites, that such bowls may have been made in the west also.

Mould-blowing admits of more variation in shape, for, if the moulded decoration be confined to the body and base and the mould be in two or more parts, flasks and bottles may be manufactured as well as bowls and dishes. As has been mentioned (p. 421), there was a group of Syrian (chiefly Sidonian) workers active during the Augustan and Tiberian periods (early 1st century A.D.) who made fine glasses by this process. FIG. 7 shows a typical piece. The two best known workers are Ennion and Artas. They signed with some such formula as APTAC CEIAON, ENNION EΠIOHCEN or the like. It is considered probable that Artas and others of these workers migrated to the west and worked

* To make this bundles of glass rods of varying colours were bound and fused together into one stick, and then the stick was cut into cross-sections and the sections laid in a mould and joined together by fusion. The result was a mosaic-pattern of sections from one or more rods.



FIG. 1. JUG, TURQUOISE BLUE, INSCRIBED WITH NAME OF THOTHMES III. INSCRIPTION AND DECORATION IN YELLOW PAINT
18th DYNASTY. (See p. 420)
(British Museum)



FIG. 2. OINOCHOE AND ALABASTRON OF SAND-CORE GLASS, 28th DYNASTY
(See p. 420)
(British Museum)



FIG. 3. ORDINARY WARE, GREEN, FROM KERCH IN THE CRIMEA. 1-2nd CENT. A.D. (See p. 424)
(Ashmolean Museum, Oxford)



FIG. 4. MOULD-PRESSED BOWLS: Nos. 1-3, POLYCHROME; No. 4, MONOCHROME.
1st CENT. B.C.—1st CENT. A.D. [See p. 424]
(British Museum)



FIG. 5. ORDINARY WARE, CHIEFLY GREENISH AND YELLOWISH, FROM SYRIA: 3-5th CENT. A.D. [See p. 425]
(Ashmolean Museum, Oxford)

PLATE III



FIG. 8a. BOWL, COLOURLESS, WITH CUT DESIGN OF ARTEMIS
SURPRISED BY ACTAEON, FROM MIRSCHBURG, SAXONY.
2ND CENT. A.D. (See p. 455)
(British Museum)



FIG. 8b. DESIGN (FROM A SKETCH) ON UNDER SIDE OF
BOWL SHOWN IN 8a



FIG. 6. CUP, GREENISH, MOULD-BLOWN, WITH CIRCUS
SCENES, FROM COLCHESTER, 1-2ND CENT. A.D. (See p. 455)
(British Museum)



FIG. 7. CUP, GREEN, MOULD-BLOWN, SIDONIAN FABRIC, SIGNED
(IN UPPER PIECE) BY ENNION, AUGUSTAN PERIOD. (See p. 454)
(British Museum)



FIG. 9. GOBLET, COLOURLESS, WITH CUT DESIGN OF VINE-SPRAYS AND GRAPE-CLUSTERS. VON RATH COLLECTION, EARLY 3RD CENT. A.D. (Antiquarium, Berlin)



FIG. 10. CYLINDRICAL BOTTLE, YELLOWISH, WITH SCRATCHED GEOMETRICAL PATTERN. FROM COLOGNE. 4TH CENT. A.D. (Wallraf-Richartz Museum, Cologne)



FIG. 11. TWO-HANDLED FLASK, COLOURLESS, WITH POLYCHROME 'SNAKE-THREADS'. EARLY 3RD CENT. A.D. (British Museum)



FIG. 12. BOWL, GREEN, WITH BLUE BLOODS. 3-4TH CENT. A.D. (British Museum)

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there⁹: at any rate it was not long before mould-blown glasses were being made in the west. Apart from simple forms, such as glasses in the shape of fruits, bivalve shells, and the like, two very interesting types of figured bowls were made during the late 1st and the 2nd century A.D., probably in Gaul.¹⁰ These were the famous bowls bearing scenes of chariot-racing (FIG. 6) and gladiatorial combats.

Mention has already been made of colourless glass. It was not until the 2nd century A.D. that the glass-workers discovered that a correct quantity of manganese, if added to the batch, would neutralize the greenish colour imparted to the metal by its iron content, and would produce colourless glass. This discovery was probably due to Alexandrian workers. At any rate it was in Egypt during the 2nd century that colourless glass first became common. Both mould-pressed and plain-blown vases were then made in Alexandria and exported examples are found all over the Empire. At the same time glass-makers borrowed from gem-cutters the method of decorating vases by cutting or grinding them on a wheel when cold. This technique was used frequently for decorating bowls and beakers of colourless ware, and there resulted from this combination of ware and decoration some of the finest products of ancient glass-making.

FIG. 8A is an example, a plain-blown bowl found at Merseburg in Saxony bearing a cut design depicting the legend of Actaeon and Artemis. The design on the under side of the same bowl, reproduced from a sketch, may be seen in FIG. 8B.

Other techniques of decoration besides cutting, for instance trailed-on threads, added blobs, pinches, and painted patterns, also began to be elaborated during the 2nd century A.D., but, as their full development only came during the succeeding century, they will be more fully discussed (p. 426).

In the second period, 3rd to 5th century A.D., the prevalent shapes are, on the whole, more complex, as may be seen from a glance at FIG. 5, which shows a group of typical glass, chiefly greenish or yellowish, of the period. The pieces illustrated are all from Syrian sites, but Gallic and Rhenish vases of the period are built to a large extent on the same lines, and followed a parallel course of development. We find that by this time rims are often curved and folded in graceful lines; bodies are more decorated; and the bottoms of vases, especially bowls and

⁹ A Kisa, *Das Glas im Altertume*, p. 923.

¹⁰ Kisa, *op. cit.*, pp. 726 ff.

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cups, are enriched by complicated stems or base-rings of various sorts. Handles are also both commoner and more elaborate.

By the beginning of this period glass-makers had developed such skill in working the material by means of plain-blowing, and they had perfected so many diverse methods of decorating plain-blown vases, that that technique almost completely ousted the other two processes, mould-pressing and mould-blowing. Millefiori pressed bowls are now very rare, and though the technique probably never died out completely in the east, it was not common again until the Middle Ages, when it was revived by the Venetians. Similarly mould-blowing, though it was not entirely given up, was only used for common rectangular wine-bottles and for small flasks and bottles.

Of the decorative processes employed during this second phase of Roman glassware, the most important are cutting and the trailing on of drawn glass. The use of cutting, after it had been invented in Alexandria during the 2nd century, spread not only to Syria but also to the western factories, and during the 3rd and 4th centuries a continuous stream of cut glass was poured forth. During the 3rd century the cutting was still quite good and well polished, and vessels such as those in FIG. 9 were produced; later the mastery of the technique degenerated and by the 4th century scratchy, unpolished work like that of FIG. 10 was the rule.

The trailing-on of threads for decorative purposes had been employed by glass-workers from 18th dynasty times onward and it was used by the glass-blowers of the 1st century A.D. for decorating flasks with spiral threads. By the 3rd century workers had become more daring, and they began to make elaborate patterns with trailed-on glass. The best known and most showy pieces are the so-called snake-thread glasses made in Cologne during the early 3rd century. FIG. 11 shows a typical instance. The pattern is in several colours and it looks like so many snakes coiled round the glass, one end of each coil being roughly fashioned to resemble a snake's head.

Closely allied to the trailing-on of threads is the decoration of glass by means of blobs or knops of glass usually of different colour to that of the vessel (FIG. 12). These were meant in the first instance to imitate settings of precious stones on metal vases. The technique attained its greatest popularity during the 4th century. Pinching, ribbing, and indenting are other favourite techniques of the period. Painting with enamel was always rare in Roman times, but some fine examples of the art are known, especially one or two fragments found in Egypt, and

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a group of bowls found, strangely enough, for the most part in Scandinavia.¹¹ Its prime was probably the 3rd century A.D.

Finally a system of decoration that became very prevalent on church glasses of the 4th and 5th centuries A.D. deserves mention. It consists of gold-leaf interlaid between two plain pieces of glass, and was used to decorate the bases of bowls. These bowls were obviously for ecclesiastical use, for the decoration usually consists of roundels enclosing the heads of saints or scenes from biblical stories.

We have now reviewed the history of glassware from its beginnings to the end of the Roman period. The glass of dynastic Egyptian and Ptolemaic times was a luxury-article produced in comparatively small quantities and at great labour and cost, mostly for the use of traders in unguents and scents. Glass of Roman times, apart from a few special luxury-types such as millefiori and cut-glass bowls, was one of the staple objects of everyday use for rich and poor alike. It was mass-produced at a very small cost, and bid fair even from the outset of the imperial period to oust metal and pottery vessels from many of their household uses. The trade flourished so much, and glass-workers became so numerous, that it was worth while for emperors in need of money to impose a tax on them. Alexander Severus did so in the early 3rd century, and we hear of Aurelian reimposing the tax later in the same century. Constantine in the early 4th century found himself able to repeal it, and that was probably the cause of the greatly increased production of glass all over the Empire which characterizes the Constantinian period.

Both the accomplishments and the limitations of the Roman glass-maker are evident. The glass of the period cannot rival its modern counterparts in symmetry of shape, in precision of chemical composition, or in purity of texture and in freedom from flaws and bubbles. This is but natural when we consider the enormous advantages enjoyed by the modern mechanized industry. The points wherein it could and did rival modern products are its artistry and its feeling for form and colour. It never overloads its decoration and it rarely if ever attempts freak forms or *tours de force* which can have but one object, that of showing off the maker's skill; and its colouring is never garish, or startling.

When we remember that the workers who accomplished all this were the pioneers in the art of glass-blowing, and men who had no long

¹¹ Kisa, *op. cit.*, pp. 821 ff., figs. 347 ff.

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tradition to guide them or to provide them with examples of what to do and what not to do, we cannot but feel admiration for the skill and prowess which they attained in the new-born art.

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Polychrome Jewellery in Kent

by T. D. KENDRICK

THE remarkable garnet-inlaid jewellery from Teutonic graves of the Pagan Period in Kent can be safely recommended as one of the most promising subjects for a research-student that English archaeology has to offer. It is to be hoped that this short introductory study will attract attention to it.

The jewellery can be divided into two main groups, that we shall call Styles A and B, and our survey begins with Style A, 1, of which ten examples are shown on PLATE I. In this class of jewel are eleven composite disc-brooches of gold and silver (*e.g.*, PLATE I, 5), sixteen ordinary silver-gilt disc-brooches (*e.g.*, PLATE I, 1-3, 8-10), nine gold pendants (*e.g.*, PLATE I, 4), and eight other ornaments, making a total of forty-four pieces, of which all come from Kent except two of the composite brooches, three of the pendants, and four of the miscellaneous ornaments.¹ Every piece shows step-pattern cloisonné, which is usually crisp and carefully controlled work. In twenty-four of the brooches the cloisonné is associated with filigree work, and in the three others, where the filigree is now missing, we may be sure that the brooches were originally designed to carry filigree ornament in the appropriate spaces. In twenty of the brooches the cell-fillings include an opaque cobalt glass in addition to the usual almandine-garnet and pearly shell; in five others this blue glass was probably used, but has now disappeared. Cobalt glass also occurs with the customary garnet on ten of the other jewels, and filigree is also found on ten of them. In contrast with this regular appearance of cloisonné and filigree, niello-inlay is rare, for it is found only on ten of the disc-brooches.

Style A, 1, jewellery represents craftsmen of unequal skill. For

¹ It may be possible to show that a few pieces found outside Kent, *e.g.* the Wintersmoor brooch in Sheffield Museum, are not of Kentish manufacture; but the rarity of such jewels makes it unnecessary to investigate the matter in an article that is concerned with Kent only.

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example, the Faversham brooch illustrated as no. 8 on PLATE I is poor work of this school, the cloisonné being trembling, bungled stuff (cf. the admirable and normal work on PLATE I, 2), the filigree being plain ringwork (cf. the magnificent, minute work on nos. 2 and 5), and the border being unimpressive and clumsy (cf. PLATE I, 1). That is to say there is both good and bad work within the class. There is also something else to notice. Certain groups of objects reveal a marked evolution in style. Thus the development from the thin, elegant Dover brooch with its firm cloisonné and its delicate filigree (FIG. 1, 1 and PLATE I, 5) to the thick and clumsy Sarre brooch (FIG. 1, 3 and PLATE IV, 4)

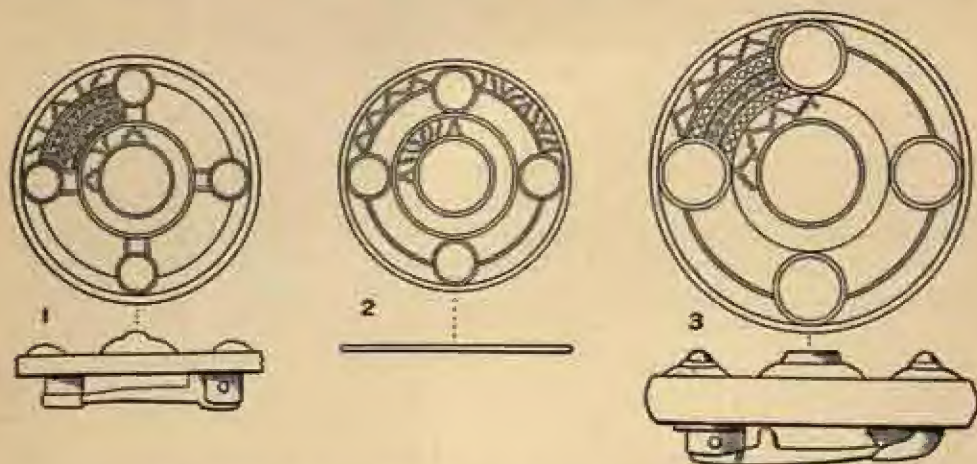


FIG. 1. JEWELLED BROOCHES FROM DOVER, AYLESFORD AND SARRE (1)

shows changes of a sort that look as though they may have taken some time; for if no. 3 of figure 1 is a contemporary of no. 1, it is astonishing that, in addition to clumsier form, cloisonné of a different pattern, and filigree of a different pattern, it should yet possess a design obviously related to the design of the first brooch, but so far removed from it that we have no difficulty in finding an intermediary form (FIG. 1, 2). The Sarre brooch was worn after the beginning of VII, as the accompanying coin-pendants prove, and there is no reason why the Dover brooch or the Aylesford brooch (FIG. 1, 2) should not have been worn at a similarly late date; but handling the Sarre and Dover brooches together, one does not easily agree that they were made at the same time, and, as there would be no difficulty in showing that the

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arrangement of figure 1 is correct (*i.e.*, no. 1 cannot be a later and improved model of no. 3), we may reasonably expect to look backwards during our studies over a period of considerable length that ends, and not begins, in early VII. There is one other point to be noticed. The Aylesford brooch (FIG. 1, 2) is in reality only a brooch-cover, and it seems to have been found in a grave in this state, minus stones² and filigree, and minus its back. It is not the only example of a brooch that apparently had been buried *unfinished*.

We now turn to Style A, II. This is a small group consisting of four composite brooches, one disc-brooch, and one pendant, all coming from Kent except two of the composite brooches. They have cloisonné ornament, but very little of the step-pattern work that is characteristic of Style A, I. On the other hand, they show us a new cloisonné feature

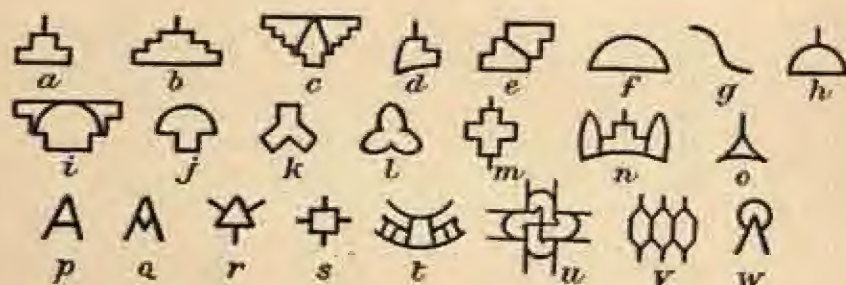


FIG. 2. CLOISON-PATTERNS IN KENTISH JEWELLERY OF STYLE A

of considerable importance, namely the honey-comb cell (FIG. 2, v), which occurs on three composite brooches. We note also the appearance of the impaled disc in cloisonné (FIG. 2, w) on the disc-brooch and the pendant, and of the one-piece 'mushroom' cell (FIG. 2, j), which is derived from a step-pattern design (FIG. 2, c and i). All six ornaments are associated with filigree work, but only two have cobalt glass in addition to garnet-inlay. There is no niello-work at all. In previous accounts of the Kentish jewellery, these brooches and the pendant have been grouped with the rest of the cloisonné jewellery, and there can be no doubt whatever that they are inseparably connected with the step-

² The brooch, so Mr N. Cook informs me, was brought into Maidstone Museum almost immediately after its discovery. The workman who found it said the stones disappeared when the brooch was washed under a tap. A similar catastrophe of which I was a witness suggests to me that these soluble gems are nothing but caked mud.

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pattern class of jewels. Taking Style A, I and II together, then, we have 49 jewels of a single 'filigree and cloisonné' family, of which most examples (A, I) show step-pattern cloisonné, though a few (A, II) have little or none of it and introduce us to honey-comb work.

Style B is illustrated by nine examples on plate II. The class consists of close upon ninety disc-brooches, twenty square-headed brooches, and about ten other ornaments. These 120 or so pieces, of which all but seven were found in Kent, are characterized by an inlay of garnet, blue, green and amber³ glass, and shell, in cast settings, by chip-carving ornament, and by the abundant use of niello. There is no cloisonné and no filigree.

In most of the disc-brooches the garnets in the field are three or four in number, and are set keystone-wise round the central ornament. In twelve examples, however, the keystone arrangement is abandoned and the garnets are in stepped settings (*e.g.* PLATE II, 3 and 7). These last brooches usually have jewelled borders, and the niello-ornament on four of them is the peculiar ringlet-pattern that is to be seen on three of the disc-brooches of Style A (*cf.* PLATE II, 8 and PLATE I, 8-10).

This group likewise shows us considerable difference in the excellence of the craftsmanship and an appreciable variation in style. It cannot be dismissed as cheap inferior jewellery of the Style A class, in as much as both classes, A and B, contain within themselves good and bad jewellery of their own kind. On the contrary, it represents a different tradition of craftsmanship, as the following table of technical differences ought to make clear.

Style A, I and II	Style B
All have cloisonné	None has cloisonné
No chip-carving ⁴	Chip-carving and cast settings the rule
Filigree common	No filigree
Use of blue glass common (70%) and gems en cabochon frequent	Blue glass rare (about 10%) ⁵ ; no gems en cabochon
Niello rare (20%)	Niello common (90%)

³ Amber glass occurs once—on a disc-brooch believed to have been found between Wincheap and Thanington, Canterbury (Wacher Coll.). It also occurs on a Style A, I disc-brooch, probably from Faversham, in the Canterbury Museum.

⁴ It does occur very rarely on buckle-hoops; but it is geometric work, not the characteristic zoomorphic chip-carving of Style B.

⁵ And never the powder-blue opaque glass, resembling lapis lazuli, that was commonly used in Style A work.

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The next point to make is that these two styles are contemporary. This does not mean that any ornament of Style A is of the same date as any ornament of Style B, but merely that, whatever their complete history may have been, the two fashions existed side by side for a period of some length. The matter is important, as Style B is sometimes assumed to be earlier than Style A. The reasons for believing them contemporary are: (1) disc-brooches of Styles A, II and B were worn by the same woman and were found together in her grave (Kingston 299); (2) disc-brooches of Styles A, I and B have been found independently with handled bronze bowls having trivet stands (Kingston 205, and Gilton 19), with crystal spheres (Chartham Downs and Sarre 4), with cowries (Wingham and Kingston 299), and with amethyst beads (six graves A and two graves B)⁶. A disc-brooch of Style B has been found in a grave (*Archaeologia*, xxx, 52) with a buckle of exactly the same form as the Wickham buckle in Style A, I (PLATE III, 2); (3) a disc-brooch of Style B bears in niello on its back the step-pattern cloisonné design of a Style A brooch (Ashmolean); (4) three Style A, I brooches have the very peculiar marginal ringlet-in-niello ornament that also occurs four times on Style B brooches. Seven Style A brooches have the popular zigzag niello border of the Style B jewellery.

So much for relative chronology. We now come to the problem of the date when these two styles flourished. It should be explained that English archaeologists do not seem to find much difficulty in believing that some brooches of Style B were made in early VI (e.g. the usual dating of Sarre 4 and Bifrons 29 and 42); but they will not agree to an earlier date than late VI or early VII for the Style A jewellery, even though Pilloy in 1912 admitted some of the equivalent continental pieces into his Period I (500-540), and Veeck, in an important recent work, does not hesitate to assign some very elaborate cloisonné brooches to early VI. Our English view, supported by Dr Åberg of Sweden, is that the bulk of the Kentish polychrome jewellery, particularly of Style A, must represent the Jutish ascendancy in the days of Ethelbert (d. 616). This is a likely hypothesis, and it is apparently supported by certain considerations that are mentioned on page 438. Nevertheless we are going to suggest that it is profoundly wrong. The view taken here is that a substantial part of the polychrome jewellery of Kent represents an earlier Kentish population than the Jutes of Ethelbert,

⁶ The argument if A=B and B=C, then C=A is dangerous when = means 'is contemporary with'. But with the proposition repeated for D, E and F and knowing that B=D=E=F, I think we have to admit that C and A are contemporary.

and that so far from being an expression of 7th century Jutish greatness, it really belongs to the archaeology of the Jutish invasion and settlement. The details of this adjustment will follow later. In the meantime it is only necessary to plead for a central date 'about A.D. 500' as an indicator of the period when most (not all) of the jewels were being worn.⁷

The reasons for suggesting this date are many in number. It is not to be expected, however, that we are going to make converts here, so it will be sufficient to give two arguments that have hitherto escaped attention. The charitable reader will no doubt be ready to believe that we are not without corroborative material, and he will perhaps bear in mind that some general remarks that come later in this paper also deal with the chronological problem.

I. The Ringlets-in-Niello Inlay. This is an extremely rare and peculiar form of ornament in which tiny hoops of metal (often penannular) are sunk into a ribbon-like field of niello. It is obviously connected very closely with the ring-and-dot in niello, as on the Nydam scabbard mount at Flensburg or on a small number of early radiated brooches, which belongs to late v or 'about 500'. We can, however, find the real *ribbon of niello* with its ringlets on two well-known pieces of Teutonic metal-work abroad (Salin, FIGS. 118, 481), and of each of these we can declare confidently that a date in vii is impossible and that one in late v is unassailable. Salin said so, and everybody agrees. Thus a remarkable ornament of very infrequent occurrence that is also a technical speciality of the rarest sort is found in chip-carving Migration Period jewellery on both sides of the Channel, and on the continent it is not found after late v.⁸ We all know the dangers of judgment according to the adjacent archaeology, but we may be quite sure that in any other field of enquiry this piece of evidence would be thankfully paraded as convincing testimony, and we should not be allowed to date our English examples over a century later than the similarly decorated continental pieces. We suggest, therefore, that until there

⁷ I find that close dating is impossible in Anglo-Saxon archaeology. I hope the reader will be content with 'second half v', 'about 500', 'second half vi' and so on. The real point of the proposed shift is best explained by abandoning even these vague guides and saying that the change is from 'Ethelbert Period' to 'Settlement Period'.

⁸ I am sorry to say that this statement is not based, as it should be, on the results of extensive travels. I hope to investigate the matter personally, but in the meantime I have to thank colleagues abroad for helping me and for their patience with my enquiries. Note that argument based on similarity of ornamental and technical details is only valid when one is dealing *as, here, with like things of the same culture*; you use it at your risk when comparing, for instance, Anglo-Saxon and Irish material.

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is proof to the contrary, we shall have to assume that the Kentish jewels with this curious niello-work are not later in date than about A.D. 500. Pieces thus branded are nos. 8, 9, 10 of PLATE I, and no. 8 of PLATE II.

II. The Imitative Buckles. PLATE III shows six buckles of very much the same form, each with a shield-shaped plate at the foot of the tongue. No. 2 has the plate jewelled with a typical example of Style A, 1, cloisonné, showing the characteristic blue-filling of the stepped cell. It has extremely fine rolled wire margins (simulating braided wire, which it is not), and a very clever animal-pattern on the plate, showing four intertwined creatures executed in delicate filigree on an embossed plate of gold. No. 4 shows us a buckle with the ornament executed entirely in an admirable filigree. We can have nothing but praise for these beautiful ornaments, nor can there be any hesitation in ranking no. 2 as the contemporary of a brooch such as PLATE I, no. 5. Look next at no. 1 on PLATE III, and contrast its tongue-plate with that of no. 2. Note the shaky uncertain cloisons, and the stupidly arranged blue and green glass; notice also the extreme coarseness of the filigree. Yet we observe that the object itself is well-made and that the craftsman knew a part of his business, as witness the admirable step-pattern design *in niello*, on the exterior of the hoop. It is only in his cloisonné and in his filigree that he appears as a bungler. Now this buckle was found with a set of particularly handsome jewels of Style B work (PLATE II, 6 a and b are two), and it seems clear that it represents a jeweller who was a beginner at cloisonné work and animal-pattern filigree, but an expert at the casting of jewel-settings and at niello-work. In other words it is one of the rare pieces (which we can call Style A, III) that were made by a craftsman of the Style B jewellery who was abandoning his own technical tricks in order to imitate Style A. How he would make a buckle according to his own tradition of craftsmanship can be seen by looking at PLATE III, no. 6 (though there is no doubt that he could do much better). But no. 1 is not work in his own idiom. It is work imitating no. 2. And so is no. 3. Look at its feeble cloisonné, and the deplorable weedy end to the pattern of very coarse filigree.

Our claim is, then, that buckle no. 1 imitates the polychrome jewellery Style A, 1. If that claim is allowed, it follows that the date of buckle no. 1 will give us a point in time *before which* a considerable quantity of the Style A jewellery had been made—enough of it, that is, to excite admiration and to suggest the idea of imitating it. Of course,

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the orthodox date for the buckle is VII, but in this article we presume to call it early VI, for two reasons: (a) because it bears the tell-tale ringlets inlay, and (b) because it was associated with two square-headed brooches (PLATE II, 6a is one of them), and a piece of Style I metalwork (PLATE II, 6b) that no reasonable person would call VII, or even 'end of VI', if found without the buckle.* To put our case crudely, therefore, we claim that the existence of buckle no. 1 proves that buckle no. 2 cannot be later than early VI, and that buckle no. 2 proves the equivalent cloisonné work of the type of the Dover brooch to be similarly early.

Let us take another example, the buckle no. 5. Those who know Kentish cloisonné really well will agree that this too shows imitative work. Of course in comparison with no. 1 its cell-work shows astonishing skill on the part of the craftsman; but compare it instead with no. 2. Notice the soft irregular steps, the travesty of a stepped cell in the centre, and the ill-fitting scraps of glass that replace the neat step-fillings of standard Style A work. Here is a craftsman that knew exactly what his cloisonné should be like—stepped cells with a coloured filling. Look back, however, to the jewellery illustrated on PLATE I. You see that the maker of the buckle was not of the Style A school. He only copied Style A work. Once again we can say that a considerable quantity of the best Style A work had been made before our buckle no. 5.

What then is its date? It was found in a rich burial accompanied *inter alia* by two magnificent drinking-horns that bear examples of early Style I metalwork *in mint state* and show precisely the same superior sort of zigzag niello-work (as on PLATE II, 1) also to be seen on pieces agreed to be early VI (it is, in fact, really rather improper to assign these horns to any other date—unless it be late v!). The grave also contained a set of four extremely delicate lobed glass beakers of an early type that were probably made in Germany in mid v. That they should survive, all four, for about 200 years during the storm and turmoil of the Migration Period may strike one as so remarkable that some people would say it was definitely unlikely; whereas that they should appear in the grave of a man who might have been alive when they

* Dr Åberg (*Anglo-Saxons in England*, p. 201) is pardonably cautious about this association. But ought one to claim that because in 1792 these and other objects figured *with them* came from 'graves', therefore we must disbelieve the B.M. register of 1862 which says that these objects *alone* came from one grave?

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were made is credible. The buckle was also accompanied by a number of other magnificent and opulent-looking objects, and by this regal warrior's shield-boss. It is one of the Kentish conical family; but the humble early type, not the imposing and swollen 7th century version of it. Naturally no one is going to pretend that both types could not have been in use at once; yet it is surely in the highest degree improbable that this vainglorious prince would allow the little old-fashioned boss to appear among his treasures, had he lived at a time when the swaggering, monster boss was in vogue. In short, everything points to a date early in VI for this grave, and there would be no need for hesitation about it here, were it not the famous Taplow burial—which wise friends declare should be dated about A.D. 625.

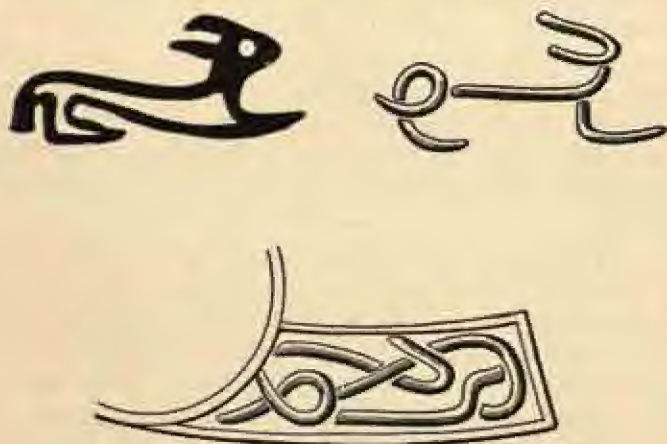


FIG. 3. ANIMAL-ORNAMENT IN ENAMEL AND FILIGREE

One reason for assigning the Taplow burial and the Style A jewellery to early VII is this. The burial contains examples of Salin's animal-style II, and a number of 'A' jewels are associated with, or actually bear, designs in that style. To this one must retort that it is time we abandoned the fiction that Style II is exclusively an art of VII. Sune Lindqvist long ago showed that it was in existence at the end of VI, and even orthodox archaeologists have discovered it as far back as mid VI. The idea seems to be that some enormous stretch of time is necessary for the production of the evolved and degenerate animal-pattern that we find on our brooches. We therefore illustrate here (FIG. 3) the formation of the pretended 7th century animal on the

famous brooch from Kingston, Kent (PLATE IV, 1), by translating *into piecework filigree* an enamelled free-style animal of late v that comes from Faversham in the same county (if you do not like this prototype, help yourself to one off the Novocherkassk crown or the Nordrup beaker). This diagram, of course, proves nothing, except perhaps that we must not neglect the influence of technical processes on the art of the jeweller. But it will show the reader that we are not afraid of the Style II battleground, even though, as he will no doubt generously agree, it is too big a subject to handle here.

Other reasons for believing that most of the fine cloisonné jewellery was made in the days of Ethelbert are based on its appearance on a little clasp in the Crondall hoard (c. 600) from Hampshire, and on pendants in the Wieuwerd hoard (c. 625) from Friesland. To these we add that the Sarre brooch (FIG. 1, 3 and PLATE IV, 4) was certainly worn c. 625, or even later, and that at about the same time an ill-fitting coin of Heraclius and Tiberius was inserted, presumably to replace some earlier centrepiece, into the pendant from Wilton, Norfolk. It is also suggested that this and the Ixworth pendant from Suffolk, being crosses, must be later than the introduction of Christianity into England by St. Augustine.

These reasons do not seem very impressive. They prove simply that some of this cloisonné was worn and treasured in early VII, which nobody has ever denied. It is, indeed, to be expected that plenty of this pretty stuff would survive, and as a matter of fact, there are sound archaeological reasons for believing that late in the sixth century a number of both early and late Kentish jewels may have travelled to new homes, where they were probably prized for many years. It is certainly no part of our case that cloisonné work as a craft came to an end in early VI; we say merely that most of the best work was made at that time or before that time. It is admitted that the Sarre (British Museum) and Abingdon brooches probably represent the Kentish jewelcraft of mid VI. And you have the Bacton pendant and St Cuthbert's cross to show you the inferior and altered styles of VII.¹⁰ As to the 'St Augustine' argument, do not the Gourdon patten and chalice, that may

¹⁰ With regard to the Wieuwerd hoard, I do not see that it affects Kentish chronology in any way. I admit that the pendant with the impaled disc cell-work ought not to be later than mid VI on my reckoning, and we note that this piece is damaged and repaired, so that it was probably already of some age when it was deposited in early VII. The pendant in an inferior A, 1 style may well be work of late VI; note the ugly and late form of barrel-loop (cf. Wilton pendant) and the coarse filigree background.

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well antedate the baptism of Clovis (496), warn us that post-Roman and jewelled metalwork is not necessarily made for, or the property of, converted heathens?

Another, and recently expressed, objection to the early date here proposed for the best Style A, 1, brooches is that the West Saxons did not copy the arrangement of their design, at a time when some West Saxon saucer-brooches were showing the influence of the Style B Kentish disc-brooch. 'They took as their model', says Mr Leeds,¹¹ 'the design of an earlier class (*i.e.* our Style B brooches) and remained satisfied with that, merely following the fashion of ostentatious size in the later Kentish class'. It has already been pointed out (p. 433) that there are grounds for distrusting the dictum that the Style B brooches are an early class and that the Style A brooches are later,¹² so we might, of course, try to scramble out of this difficulty by merely adding to our earlier remarks a respectful, but definite, protest against being thus blamed by Mr Leeds for the backwardness and barbarity of his early West Saxons. But, if we are honest, we must acknowledge that our attempt to prove the two styles are contemporary does not fully answer him. On the contrary, with the terrifying acumen that enables him so easily to maintain his position as Grand Master of Anglo-Saxon studies, Mr Leeds has now brought us face to face with a difficulty beside which our little chronological problem is as nothing. It is not very confidently, therefore, that we attempt to answer his main enquiry, but perhaps the position we are going to take up will be revealed if we say at once that the reason why Kentish cloisonné jewellery did not influence the West Saxon craftsman is because they never saw as much as a scrap of it before the days of Ceawlin, when they had for the first time an opportunity of admiring the Abingdon brooches. Until the second half of VI, it was essentially a non-Saxon craft, and was exclusively confined to East Kent. On the other hand, Style B work is twice as common; it was work of the vernacular Teutonic chip-carving school, like the saucer-brooches, and it was not confined to East Kent, having spread with the Jutes across south England to the Isle of Wight. On our view, that it should be the Style B jewellery which first influenced the West Saxons, and not

¹¹ *Antiquaries Journal*, 1933, XIII, p. 246.

¹² Mr Leeds was referring, of course, to the composite brooches only, which I group with the disc-brooches. I maintain solidly that the composite brooches are not a distinct and later class than the disc-brooches. Please compare the inner jewelled rings of PLATE I, 10 and PLATE IV, 1.

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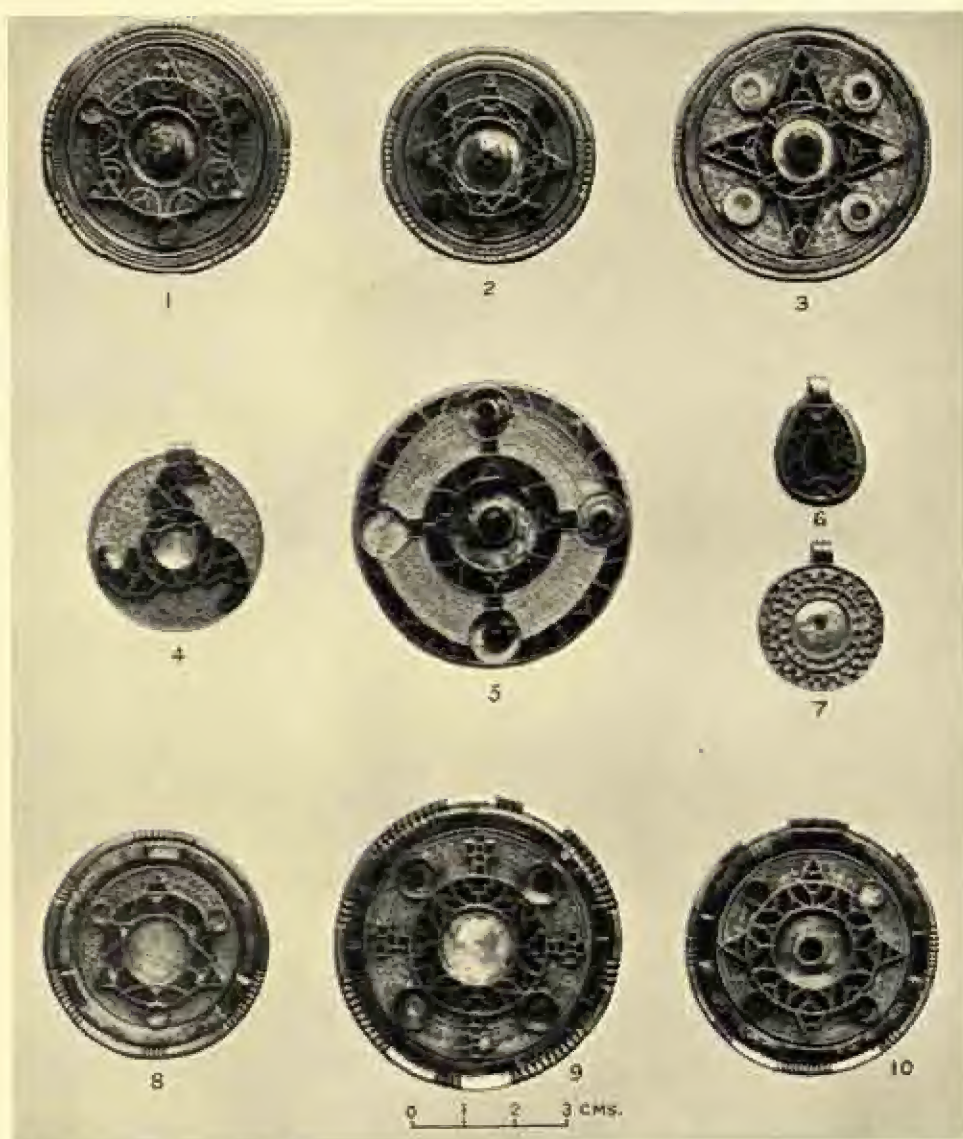
the Style A work, is a circumstance so natural that we might almost venture to say that it corroborates the novel picture of Kentish archaeology that we now propose to draw.

You do not have to make a very profound study of the Jutish graves in Kent before it becomes plain that the Style A jewellery has a cultural background of its own. This is particularly remarkable for its 'luxury' or 'foreign' aspect. For instance, it is associated on no less than five occasions¹³ with Coptic bronze bowls, and on six occasions with the well-known elongated or oval amethyst beads—which may well come from the same country as the bowls. It is also associated twice with Indian cowries. Jewellery of Style B has, on the other hand, a different background; there are no Coptic bowls, no cowries, and only two accompanying finds of amethyst beads; but it introduces us to the square-headed and radiated brooches that have not hitherto been found in any grave containing Style A brooches. We cannot pretend any longer that this difference in culture is due to a difference in date,¹⁴ as we hope has been made clear (p. 433), so the time has come to say plainly that there are two contemporary post-Roman cultures in Kent, which are geographically distinct, except in the 'mixed' settlements at Faversham and Sittingbourne. The first culture (Kent I) is situated chiefly in Thanet, the valleys of the Stour and Little Stour, and the Sandwich country, that is to say the triangle of lowland between Herne Bay, Sturry, and Walmer; but it also includes, in the south, settlements on the foothills between Folkestone and Stowting, and, in the west, the Medway stations from Chatham to Maidstone. The second culture (Kent II) is that of the Watling Street, and is seen characteristically south of Canterbury on the highlands between Kingston and Dover,

¹³ This number includes the imitative (A, III) Taplow buckle.

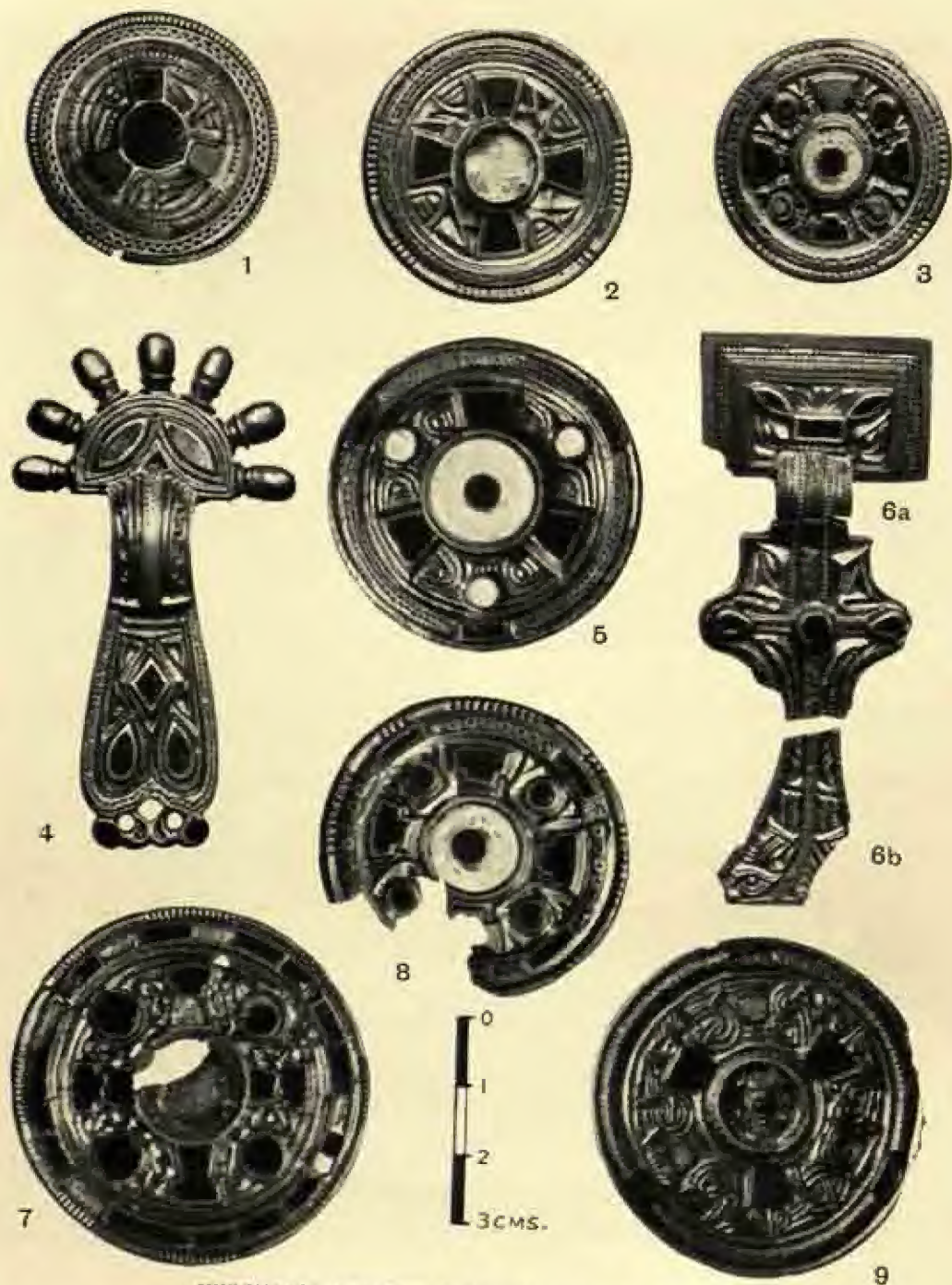
¹⁴ See footnote p. 442. The Coptic bowls, and presumably the amethysts and cowries, are said to be late in Kent. It is worth while observing that the admittedly inadequate evidence available points the other way, especially as regards the bowls and the beads. One ought not to argue that the bowls were imported in VII and not before, merely because one example, described by the finders as patched and worn, was found in a Sarre grave that we know to be late; nor does it follow that cowries were not imported before VII simply because *outside Kent* they occur in late burials. If one enquires abroad one finds the bowls and beads referred to IV-VI in Egypt (why should the Jutes of VII have organized an absurd trade in antiques?) and even Dr Åberg admits that the cowries had found their way into Europe by mid VI. It does not seem to be generally known that they were circulating long before this. They occur in a Gallo-Roman cemetery at Trion and they are found at Pompeii, for instance. In this country they occur in a Cornish barrow (as Mr Opie has remarked to me) and also in a Hampshire pit-dwelling.

PLATE 1



CLOISONNÉ JEWELLERY FROM KEST, STYLE A.I. (See pp. 429-30)
(British Museum)

PLATE II



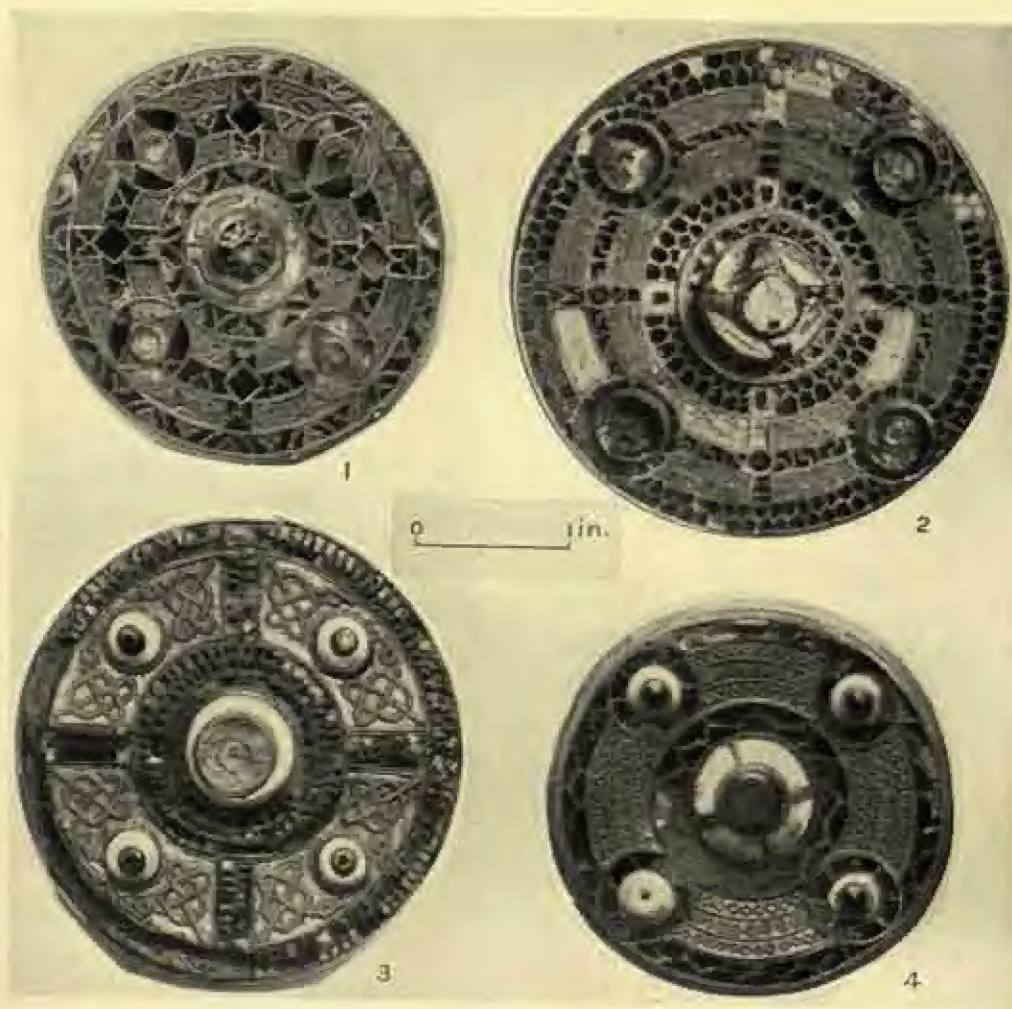
CHIP-CARVING JEWELLERY FROM KENT, STYLE B. (See p. 414)
N.B. No. 4 was only "probably" found in Kent
All British Museum

PLATE III



ORNAMENTAL BUCKLES FROM KENT AND TAPLOW (No. 5). [See pp. 433, 435]
(British Museum)

PLATE IV



JEWELLED 'COMPOSITE' BROOCHES FROM KENT AND ABERGON (No. 3). (See pp. 439, 440)

1, from Kingston, by courtesy of the Liverpool Museum;

2, from Faversham, by courtesy of the Fitzwilliam Museum, Cambridge;

3-4, from Abington and Saxe, British Museum.

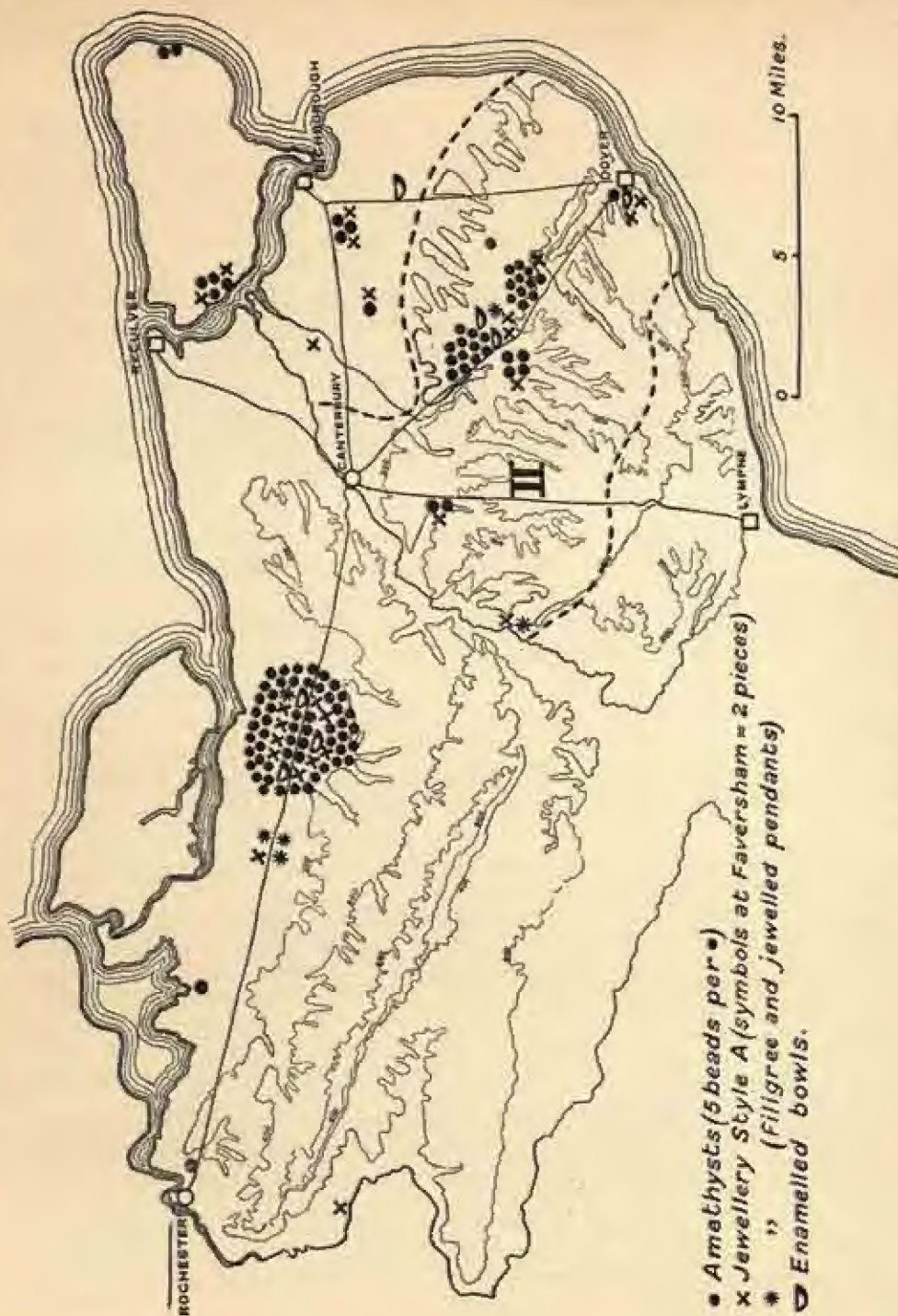


FIG. 4. MAP OF KENT, SHOWING WAITING STREET CULTURE

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but it is also represented above Canterbury in the Faversham area, where, however, it is associated with the Kent 1 culture. The distribution of the amethyst beads shows us that about 150 of these imported luxuries come from graves on Watling Street, whereas less than fifty found their way in the Kent 1 graves off this great trade-route. The cloisonné and filigree jewellery is also concentrated on the Dover-Sittingbourne line, and we may note in passing that it is here, on the road between Dover and Faversham, that six enamelled 'British' hanging bowls were found, only a single mutilated escutcheon from Easby having been discovered in the settlements of the Kent 1 culture.¹⁵ The distribution of square-headed, radiated, and long brooches, and also of lobed and conical glass beakers, show us the settlements of this first culture. The large Howletts and Bifrons cemeteries are archaeologically of great importance in this connexion, for they seem to have nothing whatsoever about them that is typical of the Watling Street culture, though they lie in the Nail Bourne valley just under the Watling Street ridge.¹⁶

The absence of Style A jewellery from Howletts and Bifrons, its rarity at Sarre and Gilton-Ash, its non-appearance at Folkestone, Stowting, and Chatham, and, even more important, its absence in the one great Jutish cemetery outside Kent (Chessel Down, I.W.), are matters that it is desirable to emphasize here. We cannot possibly object to the chip-carving and sunk-setting work of Style B, which is present at all these places, being called Jutish, for it is demonstrably a typical 'invasion' fashion that is found all the way from Thanet to the Isle of Wight. But can we say with equal confidence that the cloisonné work of Style A is Jutish too?

¹⁵ The Coptic bowls are inclined to desert Watling Street. Two come from Faversham and one from Teynham, close at hand, but five others (accompanied in four instances by cloisonné jewellery) were found in the Sarre-Gilton area. We know, of course, that one of the Sarre bowls was found in a grave of VII. It is surprising that the enamelled bowls did not also stray, and one has to deal warily with the distribution of a *small number of costly objects*. Remember that the Sarre and Gilton cemeteries were in use for over two centuries.

¹⁶ This makes the 'later date' theory for the Kingston type cemetery very difficult to believe. If you say that Kingston (2 miles from Bifrons) is different because the Jutes did not get there until some time after the occupation of the valleys, one wonders why pottery bottles and Style B disc-brooches should have been taken up the hill, if so much time had elapsed that square-headed, and radiated, and long brooches had been abandoned as out of fashion. Burial customs, it will be noted, apparently changed *during the climb*. The Nail Bourne fashion is flat graves; up at Kingston you have the famous straggling lines of barrows.

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Archaeologists would like to answer that it is, and possibly they would explain its rarity on the grounds that we have here a special and costly jewellery that was made for princes and not for common folk, who presumably contented themselves with the chip-carving ornaments. We can use this theory very happily to account for the frequent association with such expensive imports as the Coptic bowls and the pretty amethyst beads. Yet it is not so satisfactory as one might think. For though we can perhaps pass over the matter of the very extraordinary distribution of the Jutish princes, what are we going to say when we find jewellery of both styles *in the same grave*?

It would be imprudent, of course, to say that the vital differences in technique that distinguish the two kinds of jewel imply the presence of craftsmen belonging to two separate folk. At a much later date one can find a somewhat similar division between the filigree-using craftsmen of the Scotie penannular brooches and the brooch-makers who did not use filigree; but one would hesitate long and seriously before suggesting that we have in these brooches the work of two separate peoples. In fact, there is nothing in the least bit extraordinary in one and the same workshop producing simultaneously ornaments of Style A and Style B. Yet, though we can agree that Style A *became* Jutish, it is really very difficult to believe that it was *originally* Jutish, in view of its distribution and its context. You have to invent a separate tribe of the Jutes to account for its introduction and for the differences of burial-custom and grave-furniture that distinguish Kent I from Kent II, and this is a course that is open to fatal objections. The position, archaeologically, is this. Between Canterbury and Dover, holding the highlands across which runs the road to the coast, were a number of settlements of Teutonic foreigners who buried their dead in barrows, who had no square-headed or radiated brooches, and no lobed or conical glasses,¹⁷ and only cheap belongings of what we may call the ordinary Anglo-Saxon types (*e.g.* bronze workboxes, pottery bottles, etc.), and yet were in possession of sumptuous cloisonné brooches, enamelled hanging-bowls, abundant amethysts, and really fine earthenware beakers. It is a duty to offer some explanation, though we have, alas, nothing that is convincing to say. Nevertheless, turning away from one invention to another, we beg leave to suggest that the foreigners of the Watling Street were not Jutes at all, but miscellaneous Teutons, perhaps including folk

¹⁷ I reject the 'Dover' lobed glass to which Cochet (alone) refers, as I believe the locality is a mistake. Excluding this, there are nine lobed glasses in Kent I, none in Kent II, and five in the mixed area.

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like the 'barrow' Angles of Yorkshire, who had come to Kent to dwell as federates in British territory, the distinctive excellences of their culture, after settlement, being due to the influence of British Canterbury. On this view, our Style A jewellery is of *British origin*, though, of course, it was soon to become as Jutish as the chip-carving ornaments; for our supposed Watling Street resistance was no doubt only a brief phase in the story of the Jutish conquest.

Our hypothesis, then, is the reconstruction of what must have been only an episode in the history of post-Roman Kent. It is to the effect that whereas hostile invading Jutes barred the road to Thanet, to Richborough, to Lympne, and to London, yet the road from Canterbury to Dover remained for a while open to the British, whose arts and crafts, and traffic with the continent, had left their mark—long before the Jutish aristocracy had obtained control of Kent—upon the culture of the friendly adventurers from overseas who had been allowed to take up their abode by the side of the great highway, and on the highlands to which the Britons still held tenaciously. There is, of course, no claim here that all cloisonné jewellery in Kent is British. It is urged simply that a few British cloisonné brooches¹⁸ and a few British enamelled bowls appear in the graves of the women of the Watling Street settlements, before the Jutes took control of the workshops of the Britons, and before the Jutes themselves began to make cloisonné ornaments. On this view, the distribution of the Style B disc-brooch can be explained, for, being the response in the Teutonic jewel-craft to the 'British' fashion of the Watling Street, it is to be found at home in both our provinces, Jutish I and II. On this view we can understand why the favourite Teutonic niello-work appears in rare instances on the cloisonné jewels, and even betrays the Jutish craftsman himself at work upon them, at first in unsuccessful and then in successful imitation. There is an explanation, too, for the overwhelming concentration of Style A jewellery in the Jutish graves at one of the very few places where the newcomers dwelt at or near the gates of a Roman settlement, and a reason at last for the extraordinary occurrence of the mutilated or unfinished pieces that were seemingly considered satisfactory ornaments by some Jutish women. We can also dismiss as of no account the fact that all the best pieces of cloisonné

¹⁸ Very few existing jewels are British. I think the Dover brooch (PLATE I, 5) is, the Faversham brooch illustrated on PLATE V, the Canterbury Museum pendant, the Forest Gate jewel in the Ashmolean Museum, and a small number of other ornaments, including certain cabochon garnet and filigree pendants.

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come from heathen graves in country cemeteries, which must never cease to astonish us if we believe that these superb jewels represent the splendour of Ethelbert and his Christian court at Canterbury.

There are, however, many who will feel that though it is not easy to accept the cloisonné of Kent as a Jutish innovation, it is still more difficult to believe it to be of British origin—there being, of course, no evidence offered as yet that cloisonné jewellery was made in post-Roman Kent before the arrival of the Jutes. As a matter of fact, it may be possible soon, thanks to a recent discovery, to show that the cloisonné craft (which seemingly came to us from Egypt, like the Coptic bowls) as also, of course, filigree work, was probably known both in Roman Britain and in Roman Gaul. But this important point we shall have to neglect, for we have only time to glance hurriedly at the familiar main body of the cloisonné jewellery, just to see if our hypothesis is going at once to be proved ridiculous or if we can still believe that it is worth consideration.

A full analysis of the European 'Gothic' or 'polychrome' jewellery would be out of place here¹⁹, but we can conveniently give a summary account of the types that concern us by dividing the material into two main groups: I—the jewel-styles that do not show step-pattern cloisonné (except in rare, half-breed instances), and II—the styles that have a dominant step-pattern cloison. Setting aside the ancestral 'Bosporan' jewels, we have as a beginning in the first group (I) the *Petrossa* style (A), which includes such celebrated jewels as those in the second Szilagy-Somlyo find, and for general purposes such as ours may be said to belong to late iv and early v. Then follows (B) the *Gesena* style, in which the honeycomb cellwork appears, a fashion of late v and early vi, and also, at about the same time, the *northern Visigothic* style, which does not require our attention. We pass on, therefore, to (C) the *Early Quatrefoil* style of mid and late v, that is divided into two sub-groups, C 1 being the cloisonné jewellery of the upper Rhine and northeast France, and C 2 being jewellery found south of the Alps. The cupped cloison (FIG. 6, row C, 2nd from left) is a test here, but the two groups are so closely related that there is no need for us to treat them apart. Finally, in late vi and early vii we have (F) the *Monza* style, in which we find the gospel-cover of Theodolinda,

¹⁹ The best general account of cloisonné jewellery, with special reference to the antecedents of the Kentish jewels, is by Mr O. M. Dalton. It will be found in the introduction to his catalogue (Cambridge, 1912) of the McClean Bequest in the Fitzwilliam Museum.

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the Visigothic crowns, and so forth. A number of late Frankish jewels and St. Cuthbert's pectoral cross probably represent collateral schools of the same period. The second, or step-pattern, group (II) consists of (D) the *Byzantine* or *Early Step-Pattern* style of the second half of v, in which we have the Apahida and Gourdon treasures and the Childeric jewels, and then comes (E) the widely distributed *Later*

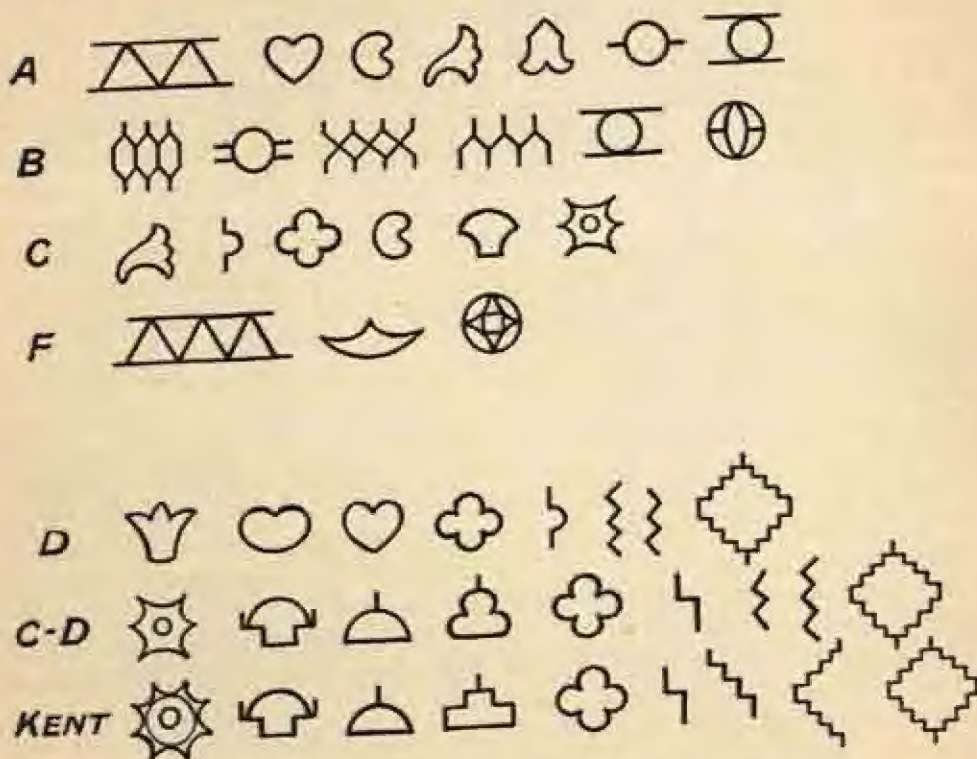


FIG. 6. CLOISON-PATTERNS IN CONTINENTAL AND KENTISH JEWELLERY

Step-Pattern style that includes some of the best cloisonné of Kent, the Rhineland, North Italy, and Scandinavia.

Style D is very like Style C, and differs only in that it makes regular use of the stepped cloison, which seems to have been an innovation due either to Byzantium or to the Gallic jewellers of v. Style E is patently a product of both the earlier styles C and D, that is to say of the two 5th century varieties of cloisonné which are found in the

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country between the Rhine and the Seine.²⁰ On examining the Kentish cloisonné, we find that it is very closely connected with the early continental work of Styles C and D (FIG. 6). This close relationship does not establish the early date of the Kentish work, but it does at least show that on stylistic grounds there is no reason why it cannot be the immediate insular derivative of the accredited 5th century continental work, and we do not have to assume that it is copied from the foreign work of Style E. It is, indeed, not at all improbable, in view of the quantity of the Kentish cloisonné and of the amazing excellence of the early pieces, that as a class it *precedes* most of the continental jewels of Style E. It is important, for instance, to bear in mind that some of the best examples of the Scandinavian and 'Lombardic' cloisonné occur on the jewelled hilts of 'ring-swords', and on the evidence at present available it is impossible to escape the conclusion that the origin of the ring-sword is to be sought in Kent, where the swords with movable rings can tentatively be dated early VI—by which time the best Kentish cloisonné (so we claim) had been made.²¹

The Gourdon patten and chalice, hidden about A.D. 525, are pieces of the same school as produced the jewellery in Childeric's grave (d.481). They must have been made in the second half of v and are presumably the work of Byzantine craftsmen who made them for the use of the Gallic Church and not for the Franks, for Clovis was not baptized until 496. That is to say, the barbarian polychrome jewellery, which had attained some popularity in parts of the Roman Empire by the beginning of v, was further developed during the century by Christian craftsmen within the empire of Gaul, so much so that Childeric and Clovis, themselves patrons of early Frankish cloisonné (Style C), were in the days of the conquest apparently proud to encourage and to follow the fashions of the Gourdon school (Style D). Yet when we find jewelled pectoral crosses in this country, we sweep impatiently aside all considerations of style and craftsmanship, and actually use these

²⁰ All the styles after the Petrossa period are liable to include 'mixed' forms of cloisonné, but in none is this so noticeable as in Style E. For instance, the Wittislingen radiated brooch has panels of a favourite Style C quatrefoil design, the Style E regulation step-pattern, and, in niello on the back, the Cesena (Style B) honeycomb.

²¹ I agree with Lindqvist in suggesting a date in the neighbourhood of mid VI for the continental jewelled 'frozen ring' hilts. But has any archaeologist tackled the problem of the scabbard-mount of the sword from Nocera Umbra I? For this mount, which does not look later than A.D. 500, cf. Veeck, *Alamannen*, Tf. 31, 9.

PLATE V



CLOISONNÉ COMPOSITE BROOCH FROM FAVERSHAM, KENT. (See p. 490)
(British Museum)

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crosses as foundation-stones of the late chronology, declaring that because they are Christian, therefore they cannot be dated before the mission of St. Augustine. Unless it is considered likely that there were no post-Roman Christians in southeast Britain during the period, let us say, 425-475, we have no good reason for shying timorously away from the possibility that the Style D jewellery of ecclesiastical Gaul was the inspiration of our Kentish cloisonné through the mediation of the British princes and clergy. We have to admit, however, that the few pieces of early foreign cloisonné that were imported into Kent

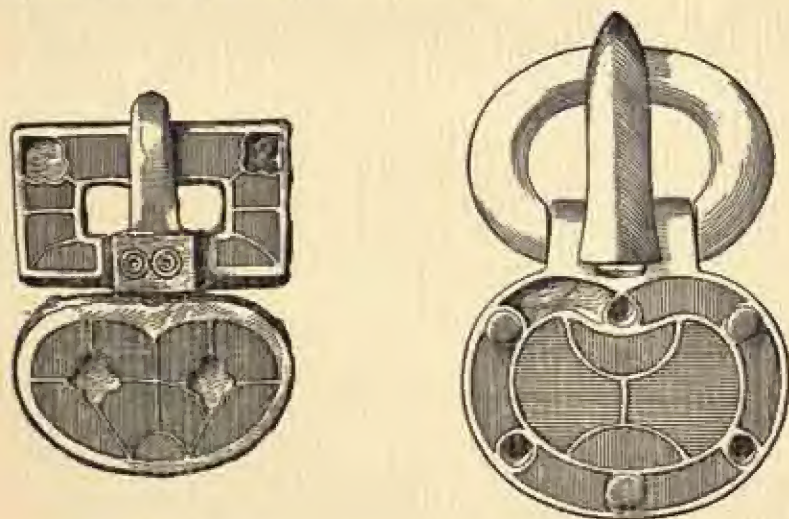


FIG. 7. JEWELLED BUCKLES IN CLOISONNÉ STYLE C, FROM FAVERSHAM, KENT (1)

(*e.g.* FIG. 7), are Style C jewels and offer no confirmation of this connexion²² with the Gourdon cloisonné, so that we must not posit a direct and recognizable influence from the Byzantine school. We must prepare ourselves to believe simply that during the invasion and settlement by the Jutes, the Britons of Kent were abreast of fashion to the extent of developing the cloisonné craft, approximately in the Franco-Gallic manner, but particularly in a native Kentish style.

This is a remarkable claim to make ; but then the Kentish jewellery

²² The multiple-step cloison probably represents the Gourdon period style. It is seen on the Canterbury Museum pendant, where it resembles authentic Gourdon work, on the Forest Gate jewel, and on the Faversham brooch (PLATE V).

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is itself remarkable. Few continental pieces of VI or even of VII, approach in delicacy and intricacy the astounding cloisonné brooch²² from Faversham with the link-pattern cells (PLATE V). The man who made it was among the greatest craftsmen of his age. He would have had no cause for shame had he seen his work compared with cloisonné from any noted centre of the craft, and it is not extravagant to suppose that this man of Kent was a master-jeweller who had no equal in western Europe. St. Radegund's reliquary at Poitiers (c. 565) certainly proves that the Byzantine cloisonné *enameller* of mid VI was a better craftsman, but the Byzantine cloisonné jewellery of this or the next century (Goluchow Castle cross and the St. Mark's library book-cover) is of a much poorer quality than the Kentish work. This splendid Faversham jewel is so much superior to the ordinary sort of Teutonic cloisonné work that it may justly claim not to be ranked with this, but rather with that much more delicate work which is associated with the enamel-craft. Thus we find ourselves comparing it, not by any means to its disadvantage, with early Byzantine enamelled ear-rings, with the Risano capsule from Dalmatia, with the Castellani brooch, with the enamelled centre of the Style A brooch from Ash in Kent, and with the beautiful little enamelled ring from Sarre in the collection of Dr Wachter. If such a magnificent piece of work as the Faversham brooch can be recovered from a pagan grave in Kent, and if there is no possible room for doubt as to its Kentish origin, then let the continent take care of itself, and let us not be afraid of giving to Kentish craftsmen the credit for originality and enterprise that is incontestably their due.

This article, therefore, does not need apology, but perhaps a treatment of the subject that is provokingly courageous may fittingly be accompanied by a plea for charity. An honest archaeologist knows that alone he cannot solve the vexing problem of Jutish Kent, and in the moments of his deepest despair you will drag from him the admission that his speculations are based on tragically inadequate evidence—for our ingenuity in stylistic and typological studies deceives nobody but ourselves. Nevertheless, having only a thin handful of facts, we are not to be dismissed from court as inadequate witnesses. In just over 20 years time we shall have completed 200 years of work on Kentish archaeology, and it would be a gross injustice to Bryan Faussett, and to

²² I think this brooch is an unfinished piece, as the filigree is missing. It is not out of the question that it was intended for *enamel*.

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those who have followed after him, if we allow it to be thought that we have not a great deal of valuable information to offer. Let us have our say, then, for it is plainly our duty to speak; but let us first make it quite clear that our material, rich though it may seem, does not as yet enable us to put forward a trustworthy theory. All that this article has attempted, therefore, is to give a hasty summary of one (not the only) archaeological method of investigating the Pagan Period antiquities of Kent, to beg some student to proceed further with the enquiry, and to obtain a hearing for the following working hypothesis.

After the close of the Roman Period, Kent was attacked by Saxon pirates, some of whom settled dangerously near to Canterbury (Hersdon cemetery). These were the folk who had, at first, only hand-made pottery and cremated their dead. To rid themselves of these dangerous neighbours, and to prevent the coming of others, the British invited Hengist and the Jutes to Kent, making them a present of Thanet. This mistaken policy resulted in a serious and large-scale Jutish invasion, followed by settlements of the new-comers, soon to become openly hostile, in the territory that we have called the Kent 1 province. These folk knew how to make cast metalwork and understood niello-inlay, but they had no experience of work in cloisonné or enamel. Both these last crafts were practised by the Britons, who were relatively a magnificent, glittering people, retaining something of the old Roman culture, and were interested in the crafts of Gaul, and in touch with both Frankish and Gallic leaders. No Jutes were allowed to settle within the five-mile radius of Canterbury, but the invaders succeeded at an early date in blocking the chief lines of communication, except the all-important Dover road, along which the Britons still trafficked with the continent. To preserve this now vital route, federate Teutons (probably Angles, Saxons and Frisians) were introduced for the second time, these being mercenaries from the continent,²⁴ who were bribed by grants of land by the side of the Watling Street, where they founded settlements that perhaps included a substantial British population. In the graves of this folk we find pieces of British cloisonné and British enamel-work, together with a curious and miscellaneous assortment of

²⁴ The cemeteries are sufficiently warlike, though not such obvious burial-places of a warrior folk as Sarre. Sibertswold, for instance, has as many swords as Gilton-Ash. I may say that I regard (temporarily) the bottles in the upland cemeteries as coming from the Kent 1 culture.

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rather inferior Teutonic ornaments. At the same time we begin to see the influence of the British cloisonné on Jutish craftsmanship, and whereas at first this is illustrated chiefly by a 'disc-brooch' fashion in the Jutish chip-carving style, there soon appears work that deliberately imitates the jewels of the Britons, not merely in general appearance but in technique. Probably simultaneously a number of cloisonné brooches were made expressly in accordance with the Jutish taste, and by the time that the Jutish conquest was complete the cloisonné work was deliberately carried on under Jutish protection and control. Thus it comes about that, though the chip-carving ornaments occur much less frequently, and though all handiwork visibly and rapidly declined in excellence, yet the cloisonné craft was not extinguished. For example, when the step-pattern work of the continent had ceased to exert its influence, there is a faint response in Kent to the cloisonné novelty of the Cesena-type honeycomb cell, this happening before the Kentish expansion at the end of VI, when brooches in the later style travelled as far afield as Abingdon. In VII, on the other hand, when continental influence might be expected again to stimulate our English cloisonné jewellery, we find no response to the masterpieces of Monza or to the crowns. St. Cuthbert's pectoral cross is witness of the craft in the days of its decline, and we see no more of it in these islands until its brief and hesitating reappearance two centuries later on Scotie penannular brooches.

Iona

by O. G. S. CRAWFORD

IONA is a small island off the west coast of Scotland. It is famous throughout the world as the adopted home of Columba, the virtual founder of the Church of Scotland. It was in this island that he founded his monastery in 563; and it was from here that Aidan, the founder of Lindisfarne, came in 635 to christianize Northumbria. Thousands of tourists visit Iona every year, and are duly conducted round the ruins during the short hour or two allowed by the steamer's call; yet how many realize that, of the remains they see, not even the oldest came into existence until about 500 years after the death of Columba?

The church of Columba, as an independent virile organization, had a very short life. It received its death-blow at the Synod of Whitby in 664. But during the hundred years of its effective existence it accomplished the purpose for which it had been founded, namely, the conversion of northern Scotland. Christianity had been introduced into southern Scotland at least a century and a half before Columba. Ninian founded a church at Whithorn about 400; Cadoc the Welshman, a contemporary of King Arthur, of Gildas and David, revived the almost extinct Christianity of the lower Clyde region; and Kentigern (born about 518) established it there upon a firmer footing, under the aegis of King Riderch of Dumbarton. There is even evidence that the influence of the Irish church penetrated as far north as Abernethy, south of the Tay estuary, during the second half of the 5th century.¹ But all attempts to prove that Christianity had penetrated further north before the time of Columba have failed. His missionary journey to the hill-fort of King Brude near Inverness, undertaken soon after 563, was a pioneer voyage of decisive importance; for it brought the Northern Picts for the first time within the orbit of history.

But there is no need to discuss here the history of Christianity in Scotland, or the later fortunes of the Columban church. It will be

¹ Skene, *Chronicles of the Picts and Scots*, 1867, 6.

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enough to say that it is last mentioned in 1221, when the Annals of Ulster record the appointment of a lector in Derry. 'St. Columba was born in the year 521; and so, at the spot which he loved best in Ireland, and where he had built his first altar to God, after exactly seven hundred years the story of the Church which he founded comes to an end'.²

Last summer I visited Iona, and the following observations are the outcome of a few days' field-work there. It will be convenient to group them under certain headings.

WHERE DID COLUMBA LAND?

Adamnan, the biographer of Columba, tells us nothing about the landing of Columba in Iona; and the statement that he landed in a bay at the south end of the island has no better authority than a writer of 1701.³ His account is as follows:—

'This harbour is called Port-a-churrich, from the ship that Calimkill and his associates came upon from Ireland to that place. The length of the curuchan or ship is obvious to anyone who goes to that place, it being marked up at the head of the harbour upon the grass, between two little pillars of stons,⁴ set up to show forth y^e samain,⁵ between which pillars there is three score of foots in length, which was the exact length of the curachan or ship'.

Reeves adds that the 'bay is exposed to the western swell of the Atlantic, and is very dangerous except in fine weather'. I can confirm this by personal observation. Even in calm weather it would be difficult to beach a boat there, much less a ship with 13 people in it.

The mound referred to above is still there. It is 33 paces long and 8 paces wide, and seems to consist of large beach-pebbles. It is situated on a storm-beach within a few yards of high water-mark; indeed the upcast beach-pebbles seem to be advancing slowly towards it from the west, and at the time of my visit (16 August 1933) the bare beach was

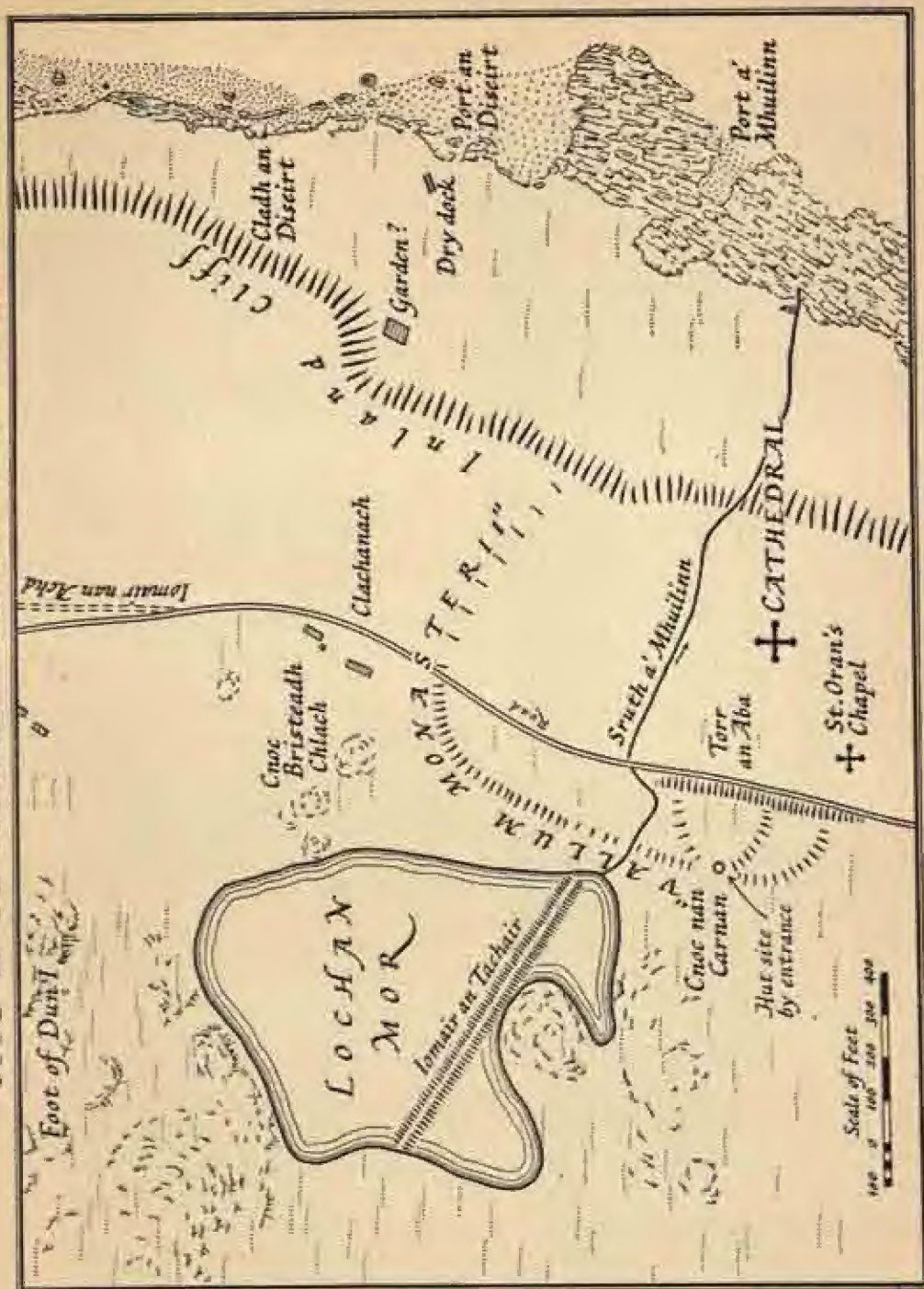
² Duke, *The Columban Church*, 118.

³ *New Statistical Account of Scotland*, vol. vii, 1745, part 2, p. 316; quoted by Reeves, p. 423 (from 'The Wodrow Manuscript, Advocates' Library, Edinburgh'). See also *Analecta Scotica* (Edinburgh, 1834) 1, 114.

⁴ Compare the Viking boat-burials referred to in the Report of the Royal Commission (Scotland), 'The Outer Hebrides, Skye and the small isles', H.M.S.O., 1928, no. 686 (Island of Canna), p. 299, fig. 310.

⁵ *sic*, for 'same, in (between)'?

SITE OF ST. COLUMBA'S MONASTERY AT IONA



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only ten paces distant. The mound is well preserved except at the west end where it has been slightly disturbed. There are no traces of the 'two little pillars of stons'. Both the mound itself and the ground around are covered with a growth of fresh green grass, and there are signs of former cultivation. Immediately north of the mound are the remains of a dry stone wall running from a rocky eminence called Dun Laraichean to the inland cliff bounding the valley on the east side. At the head of the valley is at least one large round cairn.

It should be remembered that Columba came to Iona not direct from Ireland but from some part of the mainland, perhaps Cowall, where he had been to consult his kinsman Conall.⁶ There are many sheltered bays and landing places on the east coast of Iona, near the site of his monastery⁷; and there is no reason to doubt that it was at one of these that he disembarked. Whether the ship in which he and his twelve companions came was of skin or wood we cannot say. Wooden ships sailed those seas in Adamnan's time,⁸ but the capacities of coracles should not be underestimated.⁹

With the abandonment of the Port a' Churaich legend goes also that associated with Carn Cul ri Eirinn—the 'hill-back-to-Ireland'. It is said that Columba wished to live in a place from which Ireland could not be seen, and that on landing in the bay below (Port a' Churaich) he climbed the hill, and finding that Ireland could not be seen, decided to remain. The legend is backed by no ancient authority or inherent probability. Moreover, on the day of my visit I climbed it, I saw land which I believed to be part of Ireland on the southern horizon. It lay well to the west of the Paps of Jura and Islay; but I had no map with me and no other means of verifying the observation. It would probably have been the Inishowen peninsula. The same name occurs also in Colonsay and Mull.¹⁰ The word 'carn' in the name presumably refers to the hill itself. There is no trace of any cairn on the top of it except the modern Ordnance Survey cairn or beacon.

WAS IONA INHABITED BEFORE COLUMBA'S TIME?

Reeves considered that 'Columba probably found Hy [Iona] unoccupied and unclaimed'.¹¹ Adamnan's 'Life' contains no reference of any sort to any human beings on the island other than those

⁶ Adamnan, Lib. I, cap. 7 (Reeves, 32).

⁷ Reeves, 363.

⁸ Adamnan, Lib. II, cap. 45.

⁹ See Reeves, 169-70, 363, 423.

¹⁰ Reeves, 293.

¹¹ Reeves, 436.

PLATE I



SITHIAN MOR OR CNOC AINGEAL, IONA, LOOKING SOUTHEAST; TAKEN FROM SITHIAN HILL. (See p. 456)
Ph. O. G. S. Crawford

PLATE II



THE VALLUM SHOWING ENTRANCE AND (ON ITS RIGHT, BELOW CATHEDRAL TOWER) THE REMAINS OF A HUT. (See pp. 161-2)
Pb. O. G. & Crawford.

PLATE III



THE STEEP EASTERN EDGE OF CSOC NAN CARSIAN FROM THE ROAD, LOOKING NORTHWEST. (See pp. 404-41)
Ph. O. G. S. Crawford

PLATE IV



THE VALLUM SHOWING REMAINS OF HUT AND, ON ITS RIGHT, CONTINUATION OF VALLUM TO EDGE OF HILL. (See pp. 464, 465)
Ph. O. G. S. Crawford

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of Columba's monastery. Had such existed some contacts would surely have occurred and found their way into his account. No prehistoric objects have ever been found on the island, to my knowledge. There are however a certain number of sites, some of which have been claimed as pre-Columban. These must be examined; but in no instance is the claim justified on the existing evidence.

A little west of Port a' Churaich the Ordnance Map (Argyllshire 116 NE) marks 'Laraichean (in ruins)'. The description needs revision, for the word itself, spelt 'Lathraichean', is translated¹² as meaning 'ruins'. The remains consist of cairns, walls and enclosures of dry stone; they lie scattered about over an inclined grassy plain bounded on the south or sea side by a steep descent. The brow is apparently an old sea-beach, and I estimated it as less than 100 feet above the present high-water-mark. (It is incorrectly described by Reeves as an 'artificial terrace', p. 421). The date of these remains can only be determined by excavation; they may prove to be pre-Columban, but there is no reason at present to suppose that they are; and they should not be cited as evidence for a pre-Columban occupation of Iona until their age has been definitely proved. They may be quite modern.

Close by, at the head of the valley opening out on to the bay of Port a' Churaich, there are the remains of numerous small buildings and enclosures, and traces of former cultivation. The site is called Garadh Eachainn Oig, the garden of young Hector, and is said to take its name from Hector McLean, one of the Duairt family.¹³ There are other old enclosures to be seen between Loch Staonaig and Port a' Churaich, and evidences of former cultivation, but none of them is likely to be really ancient, much less pre-Columban. Prehistoric man had a lively sense of topography, and he is not likely to have settled in these remote untractable recesses of the island when the broad acres of the central plain lay open to him. Such spots would only have been brought under cultivation when the better regions were already occupied, that is, long after Columba's time.

A more likely candidate for pre-Columban antiquity is the hill Dun Bhuirg,¹⁴ round the summit of which, says Reeves¹⁵ are 'the traces of a parapet such as are often seen enclosing ancient forts in

¹² Ritchie, 1930, 32.

¹³ Reeves, 422.

¹⁴ On the Ordnance Map (Argyllshire 104 SE) it is called Dun only; but the adjacent valley is called Cul Bhuirg. Professor Watson tells me that 'bhuirg' is the Norse equivalent of the Gaelic 'dun'.

¹⁵ p. 107.

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Ireland and Scotland'. Unfortunately I did not know of this at the time of my visit, and so did not visit it. At Cul Bhuirg close by 'an old burying-ground was exposed some years ago (*i.e.* before 1857), in which layers of bones were found mingled with charcoal. There was no tradition of its existence, so that it had no name'.¹⁶ From the description it sounds as if this were more likely to have been some sort of a midden. It would be desirable to locate the exact spot, if possible, so that excavation may be made there to decide its age and true character.

A site called on the Ordnance Map Cladh nan Druineach, at Martyr's Bay, near the Free Church, has yielded 'bones' assumed (but not definitely stated) to be human. The name has been translated 'burial-ground of the Druids'¹⁷; but Professor Watson informs me that 'druineach' really means 'artificers'. There is thus no reason to suppose the site to be pre-Columban; but one would like to know more about the bones.

A quarter of a mile northeast of the cathedral is a spot named Cladh an Diseirt. Here is an enclosure about 20 yards square, at the west corner of which are two upright stones,¹⁸ about 4 feet high, evidently the gate-posts of the enclosure. There is a third, about 3 feet high, immediately adjoining on the north side; and the bank or wall of the enclosure itself contains others. I have little doubt that this is the site of Pennant's 'cromlech', though the printed accounts are confused and difficult to follow.¹⁹ There can however be no doubt whatever that the stones just described are part of the enclosure which, as its name implies, is of much later date. A few words may be said of it and the adjacent remains.

Within the enclosure are the remains of a building²⁰ whose walls

¹⁶ Reeves, 419.

¹⁷ Reeves, 418.

¹⁸ The material is granite, and is foreign to the immediate vicinity. They are probably erratics.

¹⁹ Quoted by Reeves, 418, from Pennant, III, 258.

²⁰ This apparently is the building referred to by Skene, *Celtic Scotland*, 1877, II, 298, note 58:—'It was carefully examined this summer (1876) by the author and Mr James Drummond, R.S.A., and some excavations they made disclosed the foundations of a rude stone oratory, about 26 feet long by 14 broad, the wall being two feet thick'. It is typical of the methods of the period that the only account of this 'careful examination' should be relegated to a footnote in an unillustrated book. Near here was found a 'heart-shaped granite boulder, 20×15½ inches, and having a cross with a nimbus rather rudely sculptured on it'. (James Drummond, in *Proc. Soc. Ant. Scot.* 1875, x, 615, fig. 2).

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are not parallel to those of the enclosure. From the east corner there runs a small cobbled road leading to Port an Diseirt. At the port are two parallel earthen banks, 8 paces long and measuring 7 paces across from crest to crest. When I found them I immediately guessed that they were for a boat, and since then Mr C. E. Stevens has informed me that such dry-docks are still used in the northern islands. All around are remains of dry stone walls which defy precise description, but which could and should be planned. To the south, a few yards from the first enclosure, is a small patch of ridge-and-furrow cultivation, perhaps the vegetable garden which was attached to hermitages.²¹ The whole suggests that it is what it professes to be—the hermitage attached to the monastery. Of the age of the remains now visible it is not possible to be sure, but we can infer the existence of a hermitage at Iona in 747, when an anchorite held the abbacy.²²

On the south side of the road to the Machar, and now to the golf-links, is a green grassy mound called on the Ordnance Map Cnoc an t-Sithein (PLATE 1). Close by on the south is the farm of Shian. According to Reeves it was 'commonly called Sithean Mor' in his time (1857). It is generally, and probably correctly, identified with Adamnan's Colliculus Angelorum or Cnoc Aingel.²³ Pennant has the following interesting account of it²⁴ :—

'On the right hand, on a small hill, a small circle of stones, and a little *cairn* in the middle, evidently *druidical*, but called the *hill of the angels*, Cnoc-nar-aimgeal (*sic*) ; from a tradition that the holy man had there a conference with those celestial beings soon after his arrival. Bishop *Pocock* informed me, that the natives were accustomed to bring their horses to this circle at the feast of St. Michael, and to course round it'.

Certainly this seems much more substantial evidence of heathendom than most of what we have met with up to now ; but I think there must be some confusion. The mound is as smooth as a billiard ball (see PLATE 1), and there are no traces of boulders anywhere near. It is difficult in any case to understand how there could have been room on the top of it for a circle of stones and a *cairn*. The mound itself is plainly of natural origin, as is the other, Sithean Beg, in the opposite field, which has pieces of natural rock protruding from it.

²¹ e.g. to that of Kells, in 1084 ; Reeves, 366, 367.

²² Reeves, 366, on the authority of the Book of the Four Masters.

²³ Codex D, 13th century, reads 'Cnocan na naingheal'. Reeves, 218.

²⁴ III, 258, quoted by Reeves, p. 423 (edition of 1790, vol. I, p. 298).

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In the late Irish life of Columba there is a story which, if true, would prove that Iona was inhabited when Columba arrived. It is as follows :—

'Then he went in cheerful mood, and came to the place that is called today Iona of Columcille. He arrived there on the night of Pentecost. Two bishops that were in the land came to send him away from it. But God revealed to Columcille that they were not really bishops ; therefore they abandoned the island to him when he related to them their history, and their true performances'.²⁵

But no reliance can be placed upon so late a document as this Irish life, which has little or no historical value. It is most improbable that Christian bishops would have been found in an island that was barely within the sphere of influence of the Dalriadic Scots, whose Christianity indeed was never much in evidence at this early date.

The case of Cnoc nan Carnan will be considered below.

We see, then, that the evidence for pre-Columban inhabitants of Iona is quite inadequate. Even should proof of prehistoric habitation come to light later on, it would not prove that the island was inhabited when Columba arrived. It might well have been inhabited during some periods and not in others.

WHERE WAS THE EARLIEST MONASTERY ?

A more important problem is the site of the earliest monastery. The buildings which are now admired by visitors all belong to the 11th and later centuries. Not one of them is in any way associated with Columba or even with his church, whose headquarters had been moved from Iona to Derry in Ireland in 807, on account of the Danish raids.

One important piece of evidence has been almost completely ignored. It is well known that the early Celtic monasteries usually stood within some kind of protecting rampart or vallum, constructed for the purpose of separating the monks from the outer world and probably also as a defence in case of attack. Such ramparts existed at Durrow, Lindisfarne, Armagh, Clonmacnois and Iona.²⁶ Adamnan refers to this rampart once only,²⁷ but that is enough to prove its

²⁵ A. O. Anderson, *Early Sources of Scottish History*, 1922, 1, 45.

²⁶ Reeves, 24, 143, 361 ; Clapham, *English Romanesque Architecture before the Conquest*, 1930, 51 ; references cited in both instances.

²⁷ Adamnan, *Lib. II*, cap. 29 'Nam idem frater, vallum egressus monasterii' . . .

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existence in his time and presumably therefore in the time of Columba also. Later writers dismiss it in a few words. Pennant mentions it;²⁸ and from a further statement of his that 'the whole of their religious buildings were covered on the north side by dikes' we may infer that the remains were more perfect in his day than now. Actually the portion on the 'narrow flat' is still fairly well preserved, and seems to have suffered no damage since Pennant's visit. It runs in a NNE-SSW direction along a grassy ridge—which is a raised beach—on the west side of the road, between Clachanach and Cnoc nan Carnan (see accompanying map). It is best preserved at the north end. The rampart is now double, but I doubt very much whether this was an original feature. There are slight remains of a bank on the counter-scarp. The rampart crosses the road and can be traced quite plainly across a large field, formerly arable, up to the small inland cliff which it reaches one furlong NE of the cathedral. Southwards along the 'narrow flat' the rampart becomes less easy to follow for some yards, but there are traces both of it and its accompanying ditch and counter-scarp-bank as far as the mill-stream (Sruth a' Mhuilinn). South of the stream it is again well preserved, and here it has, I believe, not been previously noticed, or at any rate recorded. (PLATE II). But it is here that it becomes most interesting, for it passes along the western brow of Cnoc nan Carnan and curves round it till it reaches the precipitous eastern edge overhanging the road immediately opposite St. Oran's chapel. (PLATE III). Beyond this I did not trace it, but it is probable that originally it continued to the above-mentioned little inland cliff, along which it may have continued northwards (using it as a good natural aid to defence) till it met the portion first described.

On Cnoc nan Carnan it is plain and very well preserved. There is a gap here, certainly original; and on the south side, apparently in the bank itself, the remains of a round enclosure, evidently a hut. (PLATE IV). We shall return to this. North of the entrance the top of the rampart is 7 or 8 feet above the bottom of the ditch (which stands out because of the wild flags growing thickly along it). Southeast of the entrance the rampart becomes double. One portion curves round the hill at once (height about 6 feet), the other continues a little further south before turning east; both alike end on the precipitous eastern brow of the hill.

²⁸ III, 258. 'North from the granary extends a narrow flat, with a double dike and foss on one side, and a single dike on the other' (edition of 1790, vol. 1, 296).

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From the north side of the entrance there runs a scarp which seems to be in part artificial ; it ends at the steep northern brow of the hill.

There is thus a rocky fort forming a defensive nucleus within the great enclosure itself. There are suggestions of dwelling-places within this fort, in the form of smooth turf-grown hollows ; but similar hollows also occur naturally, and these may be the same.

The interesting question arises, was this a prehistoric—that is, a pre-Columban—fort, or, if not, what was its relation to the Columban monastery ? The vallum or rampart may be accepted without question as that surrounding the original monastery, which must therefore be located on the site of the cathedral or somewhere very close to it.²⁹ We are now therefore in a better position to identify the various eminences referred to by Adamnan in its immediate vicinity. The passages in question run as follows :—

1. [Columba] in cacumine sedens montis qui nostro huic monasterio eminens supereminet (Reeves, p. 58).
2. Vir sanctus in tuguriolo suo scribens sederet . . . Duo vero fratres ad januam stantes . . . (p. 216).
3. Duo vero viri, qui eadem hora ejus tugurioli ad januam stabant, quod in eminentiore loco erat fabricatum ' . . . (p. 227).
4. [Columba] monticellum monasterio supereminentem ascendens . . . de illo descendens monticellulo, et ad monasterium revertens, sedebat in tugurio Psalterium scribens . . . (p. 233).

There are only three heights which could be described as over-looking (*supereminens*) the monastery (1) The hill now called Dun I, (2) Cnoc nan Carnan, (3) Torr nan Aba (called by Reeves Torr Abb, which he translates ' Abbot's pinnacle '). (1) Dun I may be eliminated at once ; it is more likely to be the Munitio Magna of Lib. II, cap. 4.³⁰ (3) Torr nan Aba is probably the ' monticellum ' or ' monticellulum '

²⁹ Reeves came to the same conclusion on, apparently, slightly different grounds, 361.

³⁰ Only from this hill of all the three could Columba have seen a rain cloud advancing over the sea from the north ; on the other hand ' munitio ' is usually applied by Adamnan to hills with artificial forts on them, such as those of Brude (Reeves 73, 150), ' munitio Cethirni ' (pp. 91, 93), ' munitio de Broichano ' (p. 147). Probably it is, as Reeves suggests, simply a translation of the word ' dun ' which elsewhere usually (but not always) has this meaning. There are no traces of any fort on Dun I, and it is certain that no such fort ever existed there.

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of the fourth extract above. Torr nan Aba is a very small hill, and therefore suits the diminutive used. It is unlikely that an old man at the point of death would have climbed to the top of Cnoc nan Carnan, nor would it be so easy to make himself heard to the monks below as it would be from the smaller hill. Moreover, the present name may well have been derived from the impressive occasion here described. It is in any case too small to have even a 'tuguriolum' built upon it.

We are left therefore with Cnoc nan Carnan as the site of Columba's 'tuguriolum'. Can this be identified with the round enclosure mentioned on p. 461? (PLATES II and IV). It is the only object now remaining on the hill that fits Adamnan's description, but it fits it remarkably well. Here indeed is a site that should be excavated—but by a super-expert, and with a pen-knife! So far as I know it has never even been noticed by anyone before. Indeed the hill itself is only once referred to by the other writers, though in a most intriguing way:—'At a little further distance is *Dun Ni Manich*, i.e. *Monk's-Fort*, built of Stone and Lime, in form of a Bastion, pretty high. From this Eminence the Monks had a View of all the Families in the Isle, and at the same time enjoy'd the free Air' (Martin, *Western Isles*, 1716, p. 259).^{*} Reeves, who quotes this passage (pp. 423, 4) adds: 'the artificial part does not now exist'. Reeves was a scholar of the highest rank and his book is a model of what such a book should be; but he lived before the days of field archaeology. So too did Skene, whose account of the site is fuller in some respects than Reeves's, but adds little to our knowledge of it.²¹

Columba was born sixteen years before the reputed death of King Arthur; and he died in the year that Augustine landed in Kent. In an age of unsubstantial wraiths he alone stands out as a real man of flesh and blood. That is why Iona, his adopted island-home, is of such paramount interest to us. The historians, and above all Reeves, have not neglected their opportunities, and it is time that archaeologists should enter the field.

^{*} Immediately after this Martin says:—'A little further to the West lie the black Stones, which are so call'd, not from their Colour, for that is grey, but from the Effects that Tradition says ensued upon Perjury, if any one became guilty of it after swearing on these Stones in the usual manner; for an Oath made on them was decisive in all Controversies'. I do not know to what stones he is referring; perhaps someone with local knowledge may be able to discover them?

²¹ *Celtic Scotland*, 1877, II, 299.

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NOTE I. THE NAME ' IONA '

In a masterly discussion of this name Professor Watson²² reviews the various early forms which are recorded. The following is merely a summary of his remarks :—

'The name of Hi (Iona) is always in Adamnan *Ioua insula*, whence by a misreading of *u* as *n* has come the popular form Iona. It is likely that the error gained currency, if it did not originate, from the remark of Adamnan on Columba's name, which he says is in Hebrew Iona (Jonah), a dove'. There are two sets of old forms. Adamnan's *Ioua insula* is a latinization, formed in the same way as his *Egea insula* (Eigg), *Scia insula* (Skye). With this form go the forms *Eu*, *Eoa* (adjective), *Eo*, *Euea insula*, which come from the older Celtic word *Ivo-*, meaning 'yew'; this occurs in the compounds *Ivacattos* (genitive), *Ivageni* (genitive), and in the Gaulish words *Ivo-magus*, *Ivorix*. 'Adamnan's adjective *Ioua*, however, seems to go back, not exactly to *Ivo-*, but to a derivative *Ivova*, which might mean "yew-place", with which we may compare the Gaulish *Ivavos*, the local god who was the genius of the healing wells of Evaux in France'. (Dept. Creuse).

Professor Watson concludes :—'The inference to be drawn from the whole data is, in my opinion, that the "Iouan island", otherwise *Eo* or *Eu*, means "the Yew-isle", and that it may well have been the seat of a yew cultus . . . In this connection it is relevant to note the tradition of the Irish life that Columba found druids before him in Hi, and expelled them'.

Alongside of these forms is another whose nominative occurs as *I*, *Hi*, *Ia*, pointing 'to an old *Ivia*, a shortened or reduced form of *Ivova*; compare *Britannia*, *Brittia* . . . that these forms are contemporary with the series *Ioua* (adj.), *Eo*, *Eu*, appears from Bede's *Hii*, *Hy*, and from the still older *ad Segienum Hiiensem abbatem* of Cummian's epistle, A.D. 634'.

The form *Hi* occurs in the Book of Leinster ('about 1150') in a passage relating to 'a period long before Columba's time'.

To the above I have only one remark of my own to add. *The New Statistical Account* (1845, VII, 313) says that 'to the Highlanders of the present day, Iona is known as "Innis-nan-Druidhneach", or the island of the Druids'. Is it not probable that 'Druidhneach' is a corruption of 'druineach', craftsmen? It might have reference to the industry of

²² *Celtic Place-names of Scotland*, 1926, 87-90.

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stone carving, which, to judge from the remains of crosses and sepulchral slabs, existing and recorded, must have reached large proportions in Iona.

NOTE II. THE LEGEND OF ORAN

St. Oran's chapel is generally attributed to the 11th century, and, if correctly so, it is the oldest building on the island. It is not known, however, who Oran was, and his name occurs nowhere in Adamnan's life. The later and much less authoritative Irish life of Columba contains, however, a very queer legend about him which may be quoted first from the picturesque version of Pennant (1790, 1, 286-7).

'The chapel of St. Oran stands in this space, which legend reports to have been the first building attempted by St. Columba; by the working of some evil spirit, the walls fell down as fast as they were built up. After some consultation it was pronounced, that they never would be permanent till a human victim was buried alive: Oran, a companion of the saint, generously offered himself, and was interred accordingly: at the end of three days St. Columba had the curiosity to take a farewell look at his old friend, and caused the earth to be removed. To the surprise of all beholders, Oran started up, and began to reveal the secrets of his prison-house; and particularly declared, that all that had been said of hell was a mere joke. This dangerous impiety so shocked Columba, that, with great policy, he instantly ordered the earth to be flung in again; poor Oran was overwhelmed, and an end for ever put to his prating. His grave is near the door, distinguished only by a plain red stone'.

The Irish account is more bald, and does not contain the part about hell. 'Then Columcille said to his community: "It were well for us that our roots should go into the ground here". And he said to them, "It is permitted you that some one of you should go into the ground of this island, to consecrate it". Oran rose up readily, and spoke thus: "If I should be taken", said he, "I am ready for that". "Oran", said Columcille, "thou shalt have reward for it. No prayer shall be granted to anyone at any grave, unless he first make it to me". Then Oran went to heaven. Then [Columba] founded the church of Iona'.³³

³³ A. O. Anderson, *Early Sources of Scottish History*, 1922, 1, 45; quoting from Whitley Stokes, *Lives of the Saints from the Book of Lismore*, p. 30 [Anecdota Oxoniensia, Medieval and Modern Series, part 5, Oxford, 1890].

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NOTE III. LOCHAN MOR AND IOMAIR AN TACHAIR

The lake was already drained in 1772 when Pennant visited Iona (*Tour in Scotland*, 1790, I, 296). Formerly it served to work a mill situated, according to local tradition, at the point where the stream (Sruth a' Mhuilinn, mill-stream) leaves it, which is also the point where the stream is crossed by the Vallum of the monastery. From this point also there starts a broad flat rocky causeway called Iomair an tachair, ridge of the causeway. This has been described by several writers, but none of them appears to have realized its character or purpose, namely, that it was made to dam the waters of the lake so as to serve the mill. This would seem so obvious as hardly to need stating. The causeway itself closely resembles a Roman road, both in structure and dimensions; and it may have been used as a road across the lake; but it leads only to the moorland and must have been designed for some other purpose. There is no evidence to indicate its age. We may infer the existence of a mill in Columba's time, though Adamnan nowhere specifically mentions one, nor is there any evidence that it was driven by water-power.²⁴ There was a water-mill at the abbey of Fore in Ireland, built by St. Fechin, 'who flourished in the interval between Columba and Adamnan' (Reeves, p. 362, quoting St. Fechin's Life in Colgan, *Acta Sanctorum*, p. 131). For further notes on Lochan Mor and Iomair an tachair, see Reeves, pp. 422, 424.

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²⁴ Adamnan mentions a cross stuck in a quern (*molari infixi lapidi*); but this was probably a wooden 'staff-rod' (the name and suggestion are the late Mr W. G. Collingwood's, see his *Northumbrian Crosses*, 1927, p. 5).

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NEW TECHNIQUE (PLATES I-II)

During the last twenty years archaeologists have made remarkable progress in the application of modern scientific technique to ancient remains. Both in museums and in the field new methods have been devised for extracting evidence from unpromising material, and for preserving decayed objects. Papyri that have been burnt or buried in mud have been unrolled and read¹; clay tablets that were little more than mud themselves have been restored; palimpsests that were quite illegible to the naked eye have been read and photographed by ultra-violet and infra-red light. Chemical skill combined with craftsmanship has made good the havoc of time in restoring objects from the tombs of Queen Hetepheres and Tutankhamen, and from the Royal Tombs of Ur; and in our own country has turned the battered plunder of Traprain Law into a magnificent museum exhibit. Even ordinary photographic technique (in lighting and arrangement) has advanced considerably (though there are still dark places left in the provinces).

Out of doors, the invention of air-photography needs no more than a mention in ANTIQUITY. The preservation of ancient buildings being carried out by the Ancient Monuments Branch of H.M. Office of Works has now to its credit such achievements as Richborough, Old Sarum, Belas Knap, Bryn Celli Dhu, Skara Brae, and innumerable castles and abbeys. The search for post-holes, almost unthought of before the war, is now a regular feature of every excavation. So too is the employment of 'bosing'² as a preliminary to excavation, to reveal buried ditches. Moonlight photography is Dr Cecil Curwen's latest contribution to technique (see pp. 476-7).

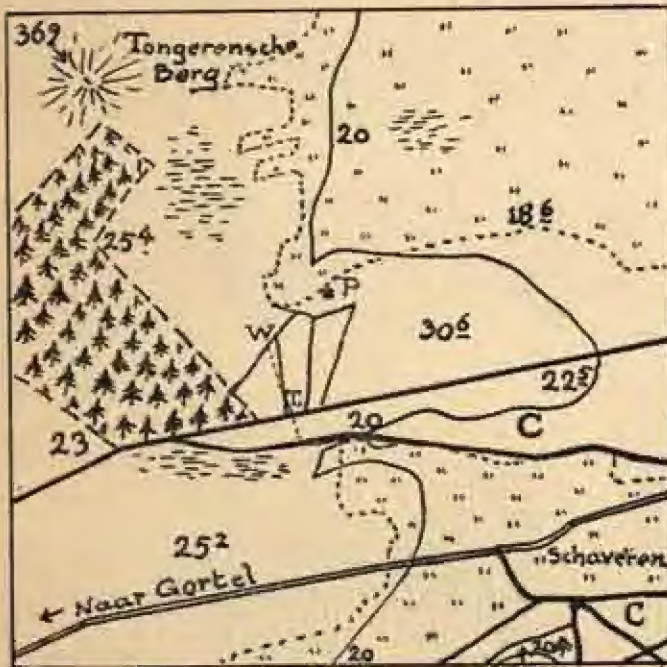
The use of what may be called the 'horizontal section' is one of the recent additions. It consists of scraping the top of an original

¹ An interesting account of Professor Ibscher's work on the Manichean papyri (dated A.D. 350-400) found in the Fayum is printed in *The African World*, 30 September 1933, pp. 338-9.

² See ANTIQUITY, 1930, IV, 30-1.

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surface-level and reading thereon the pattern revealed. It is an exact replica of the time-honoured method of reading the vertical section of a trench, to discover evidence of stratification or of structural features. The horizontal section has long been known, of course, and more or less crudely employed. I used it myself before the war (under Dr Reisner's guidance) to discover from which of several levels in a



↑ Bosch ≡≡ Moeras " „Weide
 n.Ch.T.K. N^o 374 1 : 25.000

FIG. 2

stratified site certain graves had been dug. I used it again in Wales to discover a grave in a stone circle, where acids in the soil had completely destroyed the bones (if any).³ And of course it is virtually the method employed everywhere to reveal post-holes and pits. The post-holes in the Neolithic village near Cologne were all revealed by the horizontal

³ See *Archaeologia Cambrensis*, 1920, ser. 6, xx, 112 (Circle s, plan).

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section ; the wood had completely decayed, leaving only a dark spot or stain in the soil, which in this case was a fine *loess*. It is in soils of this kind that the horizontal section reveals most, and it is just in these fine-grained soils that Britain is most deficient. (They occur, however, in the Fens of East Anglia, and it is good to know that Dutch methods

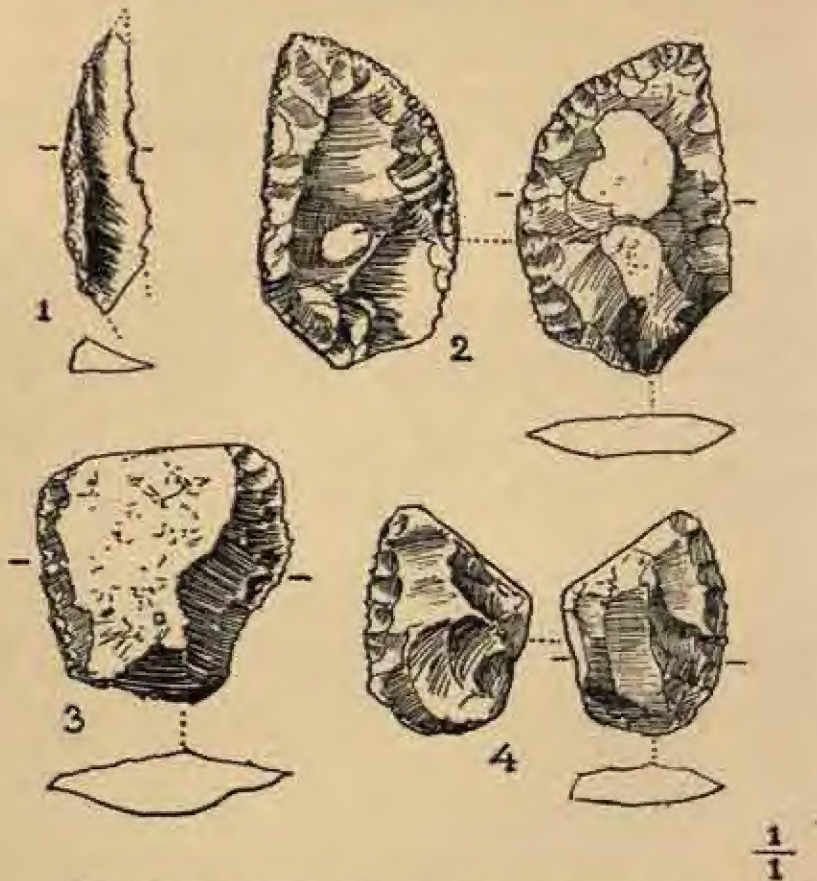


FIG. 2. IMPLEMENTS FROM TONGERENSCHÉ BARROW, EPE EN OENE

are to be employed there—not the first instance of Dutch influence in that region).

But by far the most striking discovery hitherto revealed by the horizontal section has been made by Mr Butter in a Dutch barrow called Tongerensche Berg, in the parish of Epe en Oene, province of

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Emst (FIG. 1). Here the actual outlines, or silhouettes, of two skeletons were revealed by careful scraping of the soil, although all trace of bone had disappeared. The illustrations here reproduced (PLATES I-II) tell their own story. The L-shaped blocks are not, as might at first be imagined, slabs of stone, but merely portions of the soil which have been cut into this shape by the excavator. On their surface the skull and limb-bones can plainly be discerned by the dark markings in the soil. In one instance (PLATE II) the body was buried in a crouched position, and with it were found the four flint implements here reproduced (FIG. 2). It was even possible to make certain measurements (occiput-glabella 21 cm., femur, about 51 cm., length of vertebral column 60 cm.). The other silhouette was the remains of an extended burial. Higher up in the same barrow were two cinerary urns of a later date containing burnt bones. The silhouettes represented primary burials on the one surface-line. Another barrow almost touching yielded a beaker,⁴ and Mr Butter assigns both barrows, and therefore also the silhouettes, to the Beaker period (*i.e. circa 2000 B.C.*).

On the hill nearby (30.6 on the sketch-map) is a cup-marked stone; and about 50 yards from the barrows is a bank and ditch about 200 yards long, running from marsh to marsh across high ground. At its western end the ditch had three rows of wooden piles in it; and it may be suggested that it was a defensive earthwork of the same type as we are familiar with in this country.

One of the silhouettes was removed to a museum, but the image faded away. (This suggests that relative dampness is one of its ingredients). Mr Butter hopes to build a shelter on the spot. He adds a hint that excavators should watch for similar silhouettes when exploring open-air sites of the palaeolithic period. We would reinforce this suggestion; the method is only applicable of course to soils in which bone is dissolved; obviously it is not required when bone is preserved. But soils with this action are fairly common.

The foregoing account is partly derived from one by Mr Butter, transmitted to us through the agency of Mr Grahame Clark, to both of whom we wish to express our thanks for the news of a strange and interesting discovery.

O.G.S.C.

DOLMEN-FIELD IN TRANSJORDAN (PLATES III-V)

Crossing the Jordan by the Damieh ford, the road shortly passes south of a high Bronze Age tell, climbs the steep bank to the fertile

⁴ van Giffen, *Die Bauart der Einzelgraber*, plate 118, no. 14.

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level and eventually mounts the foot-hills to Es Salt. On these, between this road and the river Zerka, lies a field of roughly a hundred dolmens,¹ covering an area about two kilometres long, gently rising to the east. They are scattered over its length and are of differing types and characters; from the prised-up slab, propped with a small column of three courses, to the complete cist type, built of five separate heavy stone slabs, the sides projecting beyond the front. The larger number are surrounded by a circular wall, in varying stages of decay—originally the height of the dolmen—intended to hide it completely, and built of long, thin, unhewn stones of approximately equal sizes.²

These dolmens are in some respects reminiscent of rock-cut tombs in Palestine, North Africa and Majorca.³ A striking feature is the door plugged with a square stone (PLATE IV) suggesting a comparison with the cist-dolmens of North Caucasia, closed by a round stone disc,⁴ and attributed to the first period of the second millennium B.C. Tallgren suggests that the Caucasian dolmens 'represent an oriental type of grave, developed and existing in the east at a very early period'. They also recall, even more vividly, the rock-cut tombs of the Mediterranean region, from Palestine to Sicily and Majorca, whose entrances were closed by a stone or wooden door (compare also the stone in front of the Holy Sepulchre).

Near the bank of the Jordan, a few kilometres south of the Damieh dolmen-field ridge, is a circle about 100 feet in diameter, outlined by rough boulders protruding about six inches above the soil. Exactly similar circles with intrusive cist-graves occur 30 miles away in the dolmen area, in the Wadi Ain Musa below Mount Nebo, where excavations of the cist-graves conducted in 1933 by M. Stikelis, of the Hebrew University, Jerusalem, have proved to be the necropolis of Tell el-Ghassul. This was a 'city of the plain' of four different periods, showing the transition from Neolithic to Early Bronze of about 3000 B.C.⁵ It is premature to claim that the Wady Damieh dolmens are of the date of the Ain Musa cist-graves (the Ain Musa dolmens being poorly preserved and not yet excavated); but it is

¹ Described by Irby and Mangles, *Travels in Egypt and Nubia, Syria and Asia Minor* during 1817 and 1818, p. 325, and in *Revue Biblique*, 1910, pp. 530-6.

² See plate III, p. 480. See ANTIQUITY, 1929, III, 491 ff. for parallels from India.

³ See *Archaeologia*, 1927, LXXVI, 121-60, and *The Antiquaries Journal*, January 1933, p. 23.

⁴ Tallgren, 'Dolmens of North Caucasia', figs. 2 and 7. ANTIQUITY, June 1933.

⁵ Excavated by Père Mallon of the Pontifical Institute, Jerusalem.

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tempting to suggest that the dolmen-fields in the Jordan valley may be the forerunners of those in North Caucasia.

The trilithon dolmen-façade is erected in Transjordan today, as a low entrance gate to a grave-circle,* or as a free-standing altar-tomb or 'ghost door' over the resting-place of many a holy man (PLATE V). The Arab mourner faces east; kisses the top stone, places his forehead upon it, and deposits a gift. Many are the objects resting on the altar-table, which gradually drop down and accumulate upon the grave itself. The example illustrated, at Deir Elyat, near Jerash, is of unknown date and smothered in useless ironmongery.

GEORGE HORSFIELD.

Director of Antiquities, Transjordan.

LOAM-TERRAINS

Dr CYRIL FOX, Director of the National Museum of Wales, writes:—

'I am much indebted to Messrs Wooldridge and Linton for their appreciative study, in "Loam-Terrains of Southeast England" (ANTIQUITY, September 1933, pp. 297-310), of the theories and views expressed in the *The Personality of Britain* on the relations between soil and settlement. Their insistence on the existence, and importance of, a class of soils intermediate between my pervious and impervious groups, is timely and valuable. I wish, however, I could be as convinced as they are that these soils are really "intermediate" (p. 299) and so definable as a group, and not "gradational". Some of them I have, as a matter of fact, classed with my porous soils, others with my clays. Indeed, I regard one of these authors' "loam terrains" (see their map, p. 301) definitely as an area of secondary settlement (e.g. an impervious area carrying "damp" oak wood), and cannot yield it without a struggle! Hence this note. I refer to the boulder-clay-covered plateau of Essex and Suffolk. Loams are, in the authors' words, "easily worked soils", but I venture to suggest the soils of this area cannot be so described. Any one who, like the writer, has tramped them in all seasons can say that if these are not, taken as a whole, stubborn, waterholding, clay soils, none is!

'It is true that the authors describe these Suffolk-Essex-Herts soils as "tending to show a higher clay fraction" than their characteristic "loams"; and as "locally approximating to the true heavy

* See Conder, *Heth and Moab*, p. 330.

clay type " (p. 302). Again, they remark " to the north of the lighter Essex boulder-clay lies the heavier Kimmeridgic variant of Suffolk, a region much less tractable under axe and plough, and no doubt serving as a natural barrier " (p. 306-7). And yet, despite such phrases, they mark the whole of these lands on the map as being in their "*intermediate*" group, just as they do the sandy loams which occur on the Lower Greensand region of the Weald. Such a classification, whatever its justification in chemical analysis, confuses rather than clarifies the problem of the relation of soil to settlement, and so—I venture to think—is really not of practical value.

' Nor can I find in Vidal de la Blache's description of the *loess* and related (*limon*) soils in France—to which the author refers—any justification for the inclusion of such clayey lands in a similar category. The *loess* (he says¹) is light yellow and of a dusty, friable texture; while the beds of loam (*limon*) of the Paris Basin, resemble *loess* in their essential properties. In these soils (he adds) trees are unable to root securely owing to their friable character.

' I should add that no real support for the view that the Essex-Suffolk boulder-clay country was sought by Early Man comes from my massed Bronze Age map; it is hardly correct to say that it shows "evidence of considerable occupation" (p. 304). The fault probably is mine—or rather the small scale of my map. In the first place *isolated dots*—which are all that occur in these areas—are of little importance comparatively.² In the second place, most of such dots as do occur in the boulder-clay zone, are on the flanks of the river valleys which dissect it and wherein gravel terraces, or exposure of the underlying chalk, tend to occur; and are not on the clay-covered plateau itself. I shall be glad to meet Messrs Wooldridge and Linton in London and show them large-scale distribution maps of the area, which are being prepared for me by Miss L. Chitty.

' In my opinion the Essex-Suffolk upland forms one of the best examples we have that impervious soils were not suitable for early settlement, since for 1500 years (the whole of the Bronze Age) a zone

¹ pp. 48-9 of the English translation: *The Personality of France*, Knopf, 1928.

² 'It is true that occasional finds do occur in such regions as these; but scattered dots mean little on such a small-scale map as ours, where hundreds of finds in the thickly occupied areas fail to be recorded for lack of space'. *Personality of Britain*, p. 59. It should perhaps be added that the belt of finds on the Bronze Age map which crosses the Suffolk upland, from Ipswich to the Bury St. Edmunds district, follows a gravel and chalk-floored corridor.

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of dense settlement bordered it, but did not effectively expand into it. That this clayland was less cold, dense and stubborn than the adjacent London Clay is probable; it is none the less an area of secondary settlement.

'Valuable evidence as to the essential character of this upland is provided by ecological botanists. Miller Christy, discussing the distribution of *Primula elatior* in Britain,² remarks that it only flourishes on a clayey soil and that one of the two districts in East Anglia which it occupies is the Essex-Suffolk boulder-clay-covered plateau under discussion, its range extending from Hatfield Broad Oak in the south to Bury St. Edmunds in the north.

'To sum up. We have no soil with clearly defined characteristics such as *loess*, and our loams fade on the one side into sands, on the other into clays. A proportion, probably large, of these loams is best classed with the pervious or the impervious soils, according to which end of the scale each individual deposit may lie, for the purposes of research on human colonization. Having said this I will readily admit that there is an important residue which requires special consideration, and that I have neglected it. For example, certain "boulder-clay" areas of *Norfolk* certainly provide the class of soil which the authors describe as loamy; I was in a difficulty as to how to deal with them, but now know the way. The authors are also doubtless correct in ascribing the dense occupation of the Thames valley floor in the Bronze Age in part to the presence of "cultivable loams". It is worth enquiring whether such loams are used for occupation or tillage. I suspect the latter, save in limited areas and periods (*e.g.* Hertfordshire in the Belgic phase).

'Considering the matter in its broadest aspect, I doubt whether on small-scale maps, and in dealing with prehistoric and early historic periods, the plotting of an intermediary soil-group is desirable; but attention should be drawn in all future work on soil and settlement to the significance of loams as affording a bridge leading incipient agriculturists from the pervious to the impervious groups.

'Other points made in the article are valuable and interesting; particularly the neglect by Early Man of the poorest—sandy—soils. I agree that these were definitely the least attractive of all the porous soils to him. In closing I reiterate my indebtedness to, and appreciation of, the authors' contribution to studies which are of equal interest to geographers and archaeologists'.

² *Journal of Ecology*, 1922, x, 200 ff.

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ARCHAEOLOGY BY MOONLIGHT (PLATE VI)

Dr E. CECIL CURWEN writes :—

'It sometimes happens that an emergency excavation becomes necessary in the middle of winter when the altitude and power of the sun is not sufficient to enable adequate photographs to be taken of the various features of the work in progress. Important post-holes, for example, must be recorded photographically, and such photographs must be of a kind that the beholder who has not seen the actual excavation may recognize them for what they are. In the writer's experience the only satisfactory way to photograph post-holes is to fix the camera to the top of a 12 or 15-foot ladder which has been lashed to two other poles so as to form a tripod. The photograph should then be taken *against the sun* in order that the greatest amount of shadow may be visible on the walls of the holes to contrast with the surface of the undisturbed ground. Fogging or halation will not occur because the camera is looking obliquely downwards—say at about 45 degrees—while the sun is also looking (as it were) obliquely downwards at a similar angle from the opposite direction, so that actually the camera will be pointing in a direction approximately at right angles with the source of illumination.

'This is all very well with a strong midsummer sun. But it so happened that in the middle of last winter the writer found himself in charge of an emergency excavation of a Neolithic camp at Brighton, previous to part of it being levelled for the race-course. In the course of the work the post-holes of one of the original gates were discovered—the first time that the post-holes of a Neolithic gate have been found in a British causewayed camp. Naturally such important features had to be photographed, but though the sky was clear the feeble January sun, pale and low in the sky, did not shine directly upon the holes at any time of the day, and photographs taken from every possible direction failed to reveal anything that could be recognized at a glance as post-holes.

'Just at that time, however, the nights were clear and frosty and the full moon was sailing high and serene in a cloudless sky, at very much the same altitude as the midsummer sun, throwing most desirable shadows on the sides of the post-holes and ditches. The sequel is obvious: the ladder-tripod was erected facing the moon, and the camera with its universal joint clamped to the top of it. An assistant with a pocket torch held in the extreme positions that were to be included in the picture enabled the focussing to be done on a screen.

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The exposure given was one hour between 8.30 and 9.30 p.m. on the night of 12 January 1933, and the stop was F6.8. The result was infinitely better than any of the sunlight photos, and does at least show the post-holes fairly clearly (PLATE VI).

It may not be necessary very often to resort to such devices, but at any rate they are worth bearing in mind. Probably in most cases an exposure of two hours would be better, especially when fairly near the object, or if the soil is not white chalk. But the longer the exposure, the softer the shadows will be, owing to the relative movement of the moon in the sky. If the moon is not full, the exposure must, of course, be proportionately longer.

The full account of the excavation will appear in *The Antiquaries Journal* early in 1934.

EXCAVATIONS AT COLCHESTER (PLATES VII-VIII)

The following report on the excavations at Colchester has been received :—

The fourth season's work has concluded somewhat paradoxically. Our information on the early part of the first century has been advanced but little ; on the other hand the second century provided us with an astonishing discovery.

Let us deal with the earlier period first. It is, of course, the main object of these excavations to discover and explore the earliest remains of Camulodunum, once the royal seat of Cunobeline. The area is so great that the only method of dealing with it is patiently to take an area each season and explore that section. We have already in past seasons learnt that the occupation was very uneven. This season the area selected lay to the south of the complex of early pits and ditches found on the top of the hill last year. Only one feature was found to be systematic. A large ditch about 25 feet wide and 8 feet deep, with rounded floor, was found to run obliquely across the hillside from the crest to the bottom of the valley. On both sides of it early pits were frequent, some of them cutting the top of the ditch and actually later than it. The contents of the ditch are consistently such that they can be dated before A.D. 43.

The ditch discovered in previous seasons, and which was at first believed to be of Roman military origin, was traced last year as far as the end of Sussex road. This year we have been able to locate it further on, on the other side of the road, in the same straight line. It appears

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to run down to the bottom of the valley and may continue across, in the manner of the other earthworks at Lexden.

The small finds of this period are, consequently, not numerous, but include some fine British coins, and as many brooches as ever.

In the second century the early ditch had been filled in and the area came into the possession of a firm of potters. Eight kilns have been uncovered. Of these the first four were lined along the hillside some distance apart. They were obviously producing flagons, mortaria, unguent pots and other buff wares in great quantity. The important discovery was of the other four kilns, which were concentrated within a retaining wall sunk five feet or more beneath the old surface. They were buried under masses of debris of fragments of tiles, pottery and clay, which extended for yards around, and the excavation of which was most arduous. This debris produced conclusive evidence of the manufacture of red-glazed *Terra Sigillata*, both plain and decorated, on the spot. Over 200 fragments of moulds for the decorated bowls, forms 30 and 37, have been found, and barrow-loads of broken flue pipes, clay rings, plugs, and luting from the flue-pipes, chimney-pots, stands for vessels and masses of burnt clay from the cupolas.

The kiln was almost exactly similar to that illustrated by Knorr, *Blickweiler*, textbild 37-40. Only the central flue and stoke-hole remain, with the burnt clay packing standing around, just as the clay walls fell away from it—for this kiln was finally overstoked and actually fused. Some of the fused 'wasters' are spectacular. It occupied the centre of the north side of the enclosure. The flue is nearly 15 feet long and the kiln was of about 7 feet internal diameter. (PLATE VII).

On each side of it lay a small rounded kiln of normal type, and in the southwest angle a larger kiln which might possibly have been used for sigillata, but more probably was not. The small one in the northeast angle had been built partly into the retaining wall. Its entrance was formed of heavy clay cylinders set upright (probably chimney-pots) and supporting an arch of inverted pots. This kiln (and others) was used in the production of great quantities of 'Castor' ware, of all forms and decoration.

The same potters carried out all this work. The most frequent names are *ACCEPTVS*, *CVNOPECTVS*, *GABRVS*, *MINVSO* and *SENILIS*.

They seem to have made every known second-century form of sigillata and we have a figure-stamp (gladiator) for use in appliqué work (unfortunately not stamped). We have an *Acceptus* stamp on a

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fragment of a barbotined Castor cup, and also (thrice) on a mortarium rim in white ware.

One cannot well discuss the date until the details of the decorated ware have all been studied thoroughly. The first impression is of the late second-century. But there are details which may put this date higher. Of the three coins found the latest is of M. Aurelius. Generally speaking nearly all the potters' names found are dated by Oswald 'Trajan-Antonine' and ascribed to Lezoux. They are in fact one section of the dubious Gaulish (or British?) potters to whom he refers in his preface (p. x).

A number of burials were found scattered over the area. Some of these were incinerations; though only one was of interest it fully made up for the dullness of the rest. A globular amphora was used as a cist (PLATE VIII). The neck and handles were cut off to insert the following:—a large buff 'honey-pot' as urn, a T.S. bowl, form 18/31 stamped (TOCCA), inverted as a lid, four small 'screw' neck flagons in buff ware, two Castor beakers, and a really beautiful little Castor (local) bowl with lid. The barbotine decoration on lid and bowl is very bold and includes a vivid portrayal of a lion hunt. There was also a rectangular mirror, two most unusual brooches, an iron knife with bone handle, bone needle, pins, two rings, and some objects of turned bone. A fifth jug stood outside the amphora.

Other burials were inhumations, generally much later. One was in the debris over the kilns. Another wore a jet necklace. Most were quite fragmentary, and in one case only the mark of the grave and the pot buried in it could be seen.

CATGUOLOPH

In a previous number (ANTIQUITY, 1931, v, 238) in discussing the date of the battle of Mons Badonicus, I identified 'guoloph' with Wallop, the name of a stream in western Hampshire. This identification was accepted by Mr A. O. Anderson (ANTIQUITY, 1932, vi, 83). I was not the first to make this suggestion, which I quoted in the belief that it was generally accepted. It was first put forward by Dr E. Guest in *Origines Celticae*, 1883, II, 174.

Subsequently (ANTIQUITY, 1932, vi, 83) I added a note of caution to the effect that the place-name Wallop also occurs in Shropshire. There is a third instance—also unknown to me when I wrote the first note—but unfortunately I cannot now remember where I saw it: I think it was in the Thames estuary.

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Of these three, early forms are known of the Hampshire site only; and they do not preclude the identification suggested.

On the other hand, I have since come across two other explanations of the term 'catguoloph' which are inconsistent with each other. One is that of Mr Egerton Phillimore in *Y Cymmrodor* (1892, xi, 24-5, note 4) to the effect that Guoloph represents the Voluba of Ptolemy, which he identifies with Golden, near Gram-pound in Cornwall (see also ANTIQUITY, 1928, II, 326, where a plan of the earthwork is reproduced). The other explanation is given by Sir John Rhys (*Y Cymmrodor*, 1905, XVIII, 73, note 1) who translates the passage in question as follows:—'And from the reign of Vortigern to the quarrel of Guitolin and Ambrosius there is a space of twelve years, which is empty, that is, empty of war'. Rhys says of it, 'the scribe responsible for the Latin came to a Brythonic adjective which he did not understand; it proves to have been *guolom*, pronounced *guolov*, the exact equivalent of Med. Irish *salum* (not *follomm*), Mod. Irish *folamh*, Sc. Gaelic *falamh*, "empty"; compare Welsh *gweili*, "empty", Breton *guollô*, *guliu*. The antiquity of the gloss is suggested also by the use of *pp* as equivalent to *ph*, which is here inexactly used for *v*'.

We are left, then, with (1) a battle which may have taken place either at Wallop in Hants or at Golden in Cornwall or at one of at least two other quite different places; (2) an adjective implying exactly the opposite, namely, a period of peace. It is not for me to decide between the claims of explanations which have been put forward by such eminent Celtic scholars; and I can only retire defeated from a struggle which surely deserves to be called 'guoloph' in the Rhysian sense.

O.G.S.C.

LEADENHALL AND ROMAN LONDON

In the Elizabethan play Thomas Dekker's 'The Shoemaker's Holiday', Act v, scene 5¹ there occurs the following passage:—

King.	Nay, my mad Lord Mayor, that shall be thy name, If any grace of mine can length thy life, One honour more I'll do thee: that new building, Which at thy cost in Cornhill is erected, Shall take a name from us; we'll have it called The Leadenhall, because in digging it You found the lead that covereth the same.
Eyre.	I thank your Majesty.

¹ Edition of Karl Warnke and Ludwig Proescholdt. Halle, Max Niemeyer, 1886.

PLATE I



SKELTON-SILHOUETTES OF THE EARLY BRONZE AGE, TONGERENSCHÉ BARROW, HOLLAND
(See pp. 470-1)

PLATE II



SKELETON-SILHOUETTE (CROUCHED), TONGERENSCHE, HOLLAND
[See pp. 479-5]

PLATE III



DOLMEN AT DAMIEH, TRANSJORDAN. ENCLOSING WALL HIDING THE INTERIOR. (See p. 472)

PLATE IV



DOLMEN No. 2, DANIEL, TRANSJORDAN. (See p. 471)

PLATE V



MOTHERN GHOST-DOOR DOLMEN, DEIR EL DIVAL, NEAR JERASH. (See p. 474)

PLATE VI



WHITE HAWKE BY MOONLIGHT. (See p. 476)
Ph. E. Cecil Curwen

PLATE VII



KILN FOR 'SAMIAN' POTTERY, COLCHESTER. (See p. 478)

PLATE VIII



ROMAN GRAVE-GROUP WITH AMPHORA-CIST, FOUND NEAR SHREVEN FARM, COLCHESTER,
AUGUST 1933. (See p. 479)

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Simon Eyre, the hero of the play, was an upholsterer and draper who played a prominent part in the affairs of the City of London in the first half of the 15th century. He built Leadenhall in 1419 to act as a public granary against times of scarcity, and before long the place became an important public market where the Common Beam for the weighing of wool was kept, and where, in particular, meat and leather were sold, a function it has performed down to the present day.

The play was written in the year 1600 and Dekker makes Eyre into a shoemaker under the mistaken belief which seems to have been current that the builder of the great leather market must have been a cordwainer by trade. Apparently at the end of the 16th century the tradition still held good that a great deal of lead had been found when the foundations of the hall were dug, which lead was thriftily used to cover the new roof.

In this connexion it is interesting to recall that Leadenhall stands in part upon the site of the basilica of Roman London.² Such a discovery on this site will occasion no surprise and there can be little doubt that the tradition made use of by Dekker had a perfectly sound basis of fact. Thus we have an indirect record of a valuable find on the most important site of Roman London made at the beginning of the 15th century and perpetuated by a name to the present day. C.W.P.

² Royal Commission's Inventory of Roman London, 1928, p. 42.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

A correspondent informs us that at one of the Stradballys in Ireland, 'the churchyard has modern imitation cottages in concrete as mausolea, even to the provision of dummy chimneys!' This is an interesting survival of the custom of making the houses of the dead resemble those of the living. We have always believed—though proof is still lacking—that megalithic burial-chambers and rock-cut tombs were in this tradition. If any of our Irish readers should be able to secure a photograph of the Stradbally cottage-tombs we should be most grateful.



A Sunday paper, describing an exhibition of gold objects at Budapest, ascribes them to the *palaeontologic* period. This is new to us. The word 'palaeontologic' occurs in one passage only cited by the Oxford English Dictionary, where it is explained as 'pertaining to palaeontology; relating to extinct organisms'. This no doubt is true, but not very helpful in dating gold objects. All this points to the crying need of a glossary of technical archaeological terms.



Apropos of this, we are constantly being asked by readers why we do not start a comic section in *ANTIQUITY*. There is a good deal to be said for the suggestion; on the other hand professional wit is never sure of a popular appeal, and nothing is worse than a joke that misses fire. Probably it is safer to leave things as they are. Previous numbers have not all been devoid of humorous patches.



A Romano-British kiln has been discovered at Arne in Dorset, on the southern shores of Poole harbour, and has been excavated by

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the boys of the South Road Senior Boys' School, Poole, under the superintendence of the Headmaster, Mr H. P. Smith. It was due to Mr Smith and his boys that the remarkable Merovingian helmet from Hamworthy was rescued from the oblivion which would otherwise have overwhelmed it (*Teachers' World*, 2 August 1933).



The Brighton and Hove Archaeological Club has drawn up an interesting lecture-programme for the present winter. The subjects have not been selected haphazard, but are made to fit into a comprehensive scheme, the object being to approach universal history through local channels, to reach the unknown and distant by means of that which is familiar and close at hand. That is the way it should be done. A county which has produced a Piltdown skull, several neolithic camps and flint-mines, Cissbury, Pevensey, Highdown and the Battle of Hastings need not hesitate for lack of material, and we wish the organizers every success. (Details from the Hon. Secretary, 248 New Church Road, Hove).



Tintagel has been excavated, and the remains of a Celtic monastery found there. The island site is one that would exactly suit the taste of those early monks. The discovery adds real interest to a romantic place; and though the Cornish dove-cotes are all a-flutter because King Arthur is dethroned, serious students will welcome the light that is to be thrown on the Dark Ages of Early Christianity. The discovery confirms the acute observation of Mr Henry Jenner, F.S.A., in a striking fashion (*The Times*, 7 August; *Manchester Guardian*, 14 September; *Newquay Express*, 27 July).

For further information on King Arthur and Cornwall we would refer our readers to Mr H. O'N. Hencken's *Cornwall and the Scilly Isles* (Methuen's County Archaeologies, 1932), and to Mr Jenner's articles cited on p. 284.



At least six prehistoric sites (five of them hill-forts) have been excavated this summer:—Pen Dinas (near Aberystwyth); Meon hill, Hants; Salmonsbury, near Bourton-on-the-Water, Glos.; Bigbury, near Canterbury; Willbury, Herts; and Finavon, Forfarshire.

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Pen Dinas has yielded remains of stone ramparts, a road-way, a heap of sling-stones and iron objects, but nothing to date its construction (*Montgomeryshire Express*, 29 August); Meon hill has produced a quantity of very fine ornamented pottery of All Cannings Cross type and pits of complicated plan (*Hampshire Observer*, 7 October); Salmons-bury a mixed bag comprising a Belgic hut, a well, skeletons and alleged evidence of cannibalism (*Cheltenham Chronicle*, 23 Sept.; *The Times*, 5 Sept.); Bigbury, probably the one hill-fort really associated with Caesar, has yielded little in comparison with what the gravel-diggers found there last century.



Of Willbury Mr APPLEBAUM says, in a letter to the Editor (1 October 1933):—'The hillfort had a ditch of about 25 feet in breadth and between 7 and 8 feet deep, and a rampart about 25 feet wide at the base. It was of La Tène date, and was preceded by an earlier enclosure of unascertained extent, consisting of a palisade without ditch, destroyed by fire shortly before the main fort was built . . . The south gate consisted of two if not three periods . . . In the interior hut-pits were found, one of Hallstatt-La Tène date in association with a flint pavement from which two steps led down into it. Of four other pits, two were overlain by a Belgic flint pavement. In the latter period a flint-metalled road was laid down over the silted-up ditch to the west of the south gate, which had by this time been levelled up . . . Willbury was never a hill-fort in Belgic times'. A report was published in *The Times*, 8 August, p. 15.



The excavations at Jarlshof, near Sumburgh Head in Shetland, have been as fruitful as ever. The finds relate to the three occupation-periods and include a complete mould for a bronze sword, the complete skeleton of a dog ('about the size of an Irish terrier'), saddle-querns used apparently for pounding up clay for pots (a process we have watched ourselves in Tunisia), stone implements, pottery and pumice (*Scotsman, Glasgow Herald*, 26 August, illus.).



The Bronze Implement Committee of the British Association, appointed 20 years ago, reports that its labours are finished, and a

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practically complete card-index of bronze objects of the Bronze Age compiled. The index is deposited in the rooms of the Society of Antiquaries, Burlington House. It now remains (1) to add to it a record, at least of the hoards recorded in printed proceedings and if possible of all isolated discoveries of 'brimps' which have since disappeared, (2) to map the distribution of hoards and selected types. These are tasks for the younger generation of archaeological students (*Nature*, 16 September).



Caves excavated at Ballintoy, co. Antrim, have yielded stratified deposits and pottery 'like that obtained from the *souterrains*' in the district. (*Northern Whig*, 11 September).



Graves near Philippopolis in Eastern Bulgaria have been opened by the Bulgarian Institute of Archaeology. The finds are rich, in every sense, and include a magnificent chased silver cup of Athenian origin, and dated to the 'middle or third quarter of the fifth century'. Two gold rings were found inscribed with the Thracian names of Skythodokos and Mezenli, in Greek characters. The other objects found include gold breast-plates, helmet, sword, spears and silver-gilt plaques. (*Manchester Guardian*, 23 August).



Two beakers have been found at the Sheepwash, Iford near Christchurch, Hants, a port of the Early Bronze Age. They were rescued by Mr J. B. Calkin, of Wychwood School, in whose collection they now are.



In the *Illustrated London News* (22 July, pp. 124-5) is an account of the excavations at Tell Asmar in Mesopotamia by Dr Frankfort, Field Director, Oriental Institute of Chicago, who describes the temple of a fertility god Abu and the objects found there. Amongst them is a cylinder-seal of Hercules slaying the seven-headed hydra!—truly an unexpected discovery from a layer dated to at least 2700 B.C., and evidence of the great antiquity of the myth. In the course of this

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article Dr Frankfort suggests that the Royal Tombs of Ur 'will prove not to contain ordinary interments of royal personages at all, but victims killed in the course of similar ceremonies, when famine or drought required a particularly efficacious ritual including the sacrifice of human life'.



The Oxford University Archaeological Society, under the direction of Mr J. N. L. Myres, F.S.A., and Mr H. N. Savory, and with the kind permission of Mr H. O. King, the owner of the site, undertook in July the excavation of part of a prehistoric settlement on Mount Farm about a mile and a half north of Dorchester, Oxon. A circular ditch and a complex of other ditches and pits are visible on the area selected, both on air-photographs and from the ground in standing crops or grass. The large circle was found to antedate a group of Early Iron Age pits and is presumably of Bronze Age date, though it could not be fully excavated owing to the presence of a hay-stack. Its ditch, on the bottom of which in several sections traces of fires were found, was almost filled up and its significance probably already forgotten in the Iron Age, for pits and ditches of that period were cut through its filling in several places. Twelve of these pits and several ditches, including a roughly circular enclosure of the same date, were excavated. Pottery of all phases of the Iron Age from Late Hallstatt types onwards was found together with worked flints, loomweights and a few bone objects. The settlement was apparently extended in the Roman period. It is hoped to continue the excavation next year with the especial objects of completing the examination of the Bronze Age circle and of tracing the development of the settlement, and if possible its field-system through the Iron Age and the Roman period.

Some Recent Articles

This list is not exhaustive but may be found convenient as a record of papers on subjects which are within the scope of ANTIQUITY. Books are occasionally included.

The Antiquity of Man in southwestern Asia, by Henry Field, *American Anthropologist* Jan.-March 1933, XXXV, 51-62.

In this interesting paper Mr Field enumerates briefly the principal discoveries of palaeolithic man and his tools in the Middle East, and the few scientific excavations that have been carried out. The survey is, however, very incomplete; there is no reference to the work of Caton Thompson and Gardner in the oases—a regrettable omission. He concludes with some attractive theorizing.

The Roman evacuation of Britain, by H. Stegan Schultz. *Journ. Roman Studies* 1933, XXIII, 36-45.

Argues powerfully for the later date (442), supporting Bury against Collingwood and the bulk of orthodox opinion. The evidence cited is strong, and needs refuting if the earlier date is to be retained.

Über die streitaxtkulturen in Russland; studien über die verbreitung neolithischer elemente aus Mitteleuropa nach osten; by Aarne Ayräpää. *Eurasia Septentrionalis Antiqua* (edited by Tallgren and Manninen, Helsingfors, and abbreviated as *ESA*) 1933, VIII, 1-160.

This monograph deserves a special review, which we hope to be able to give it later.

Preliminary note on some incised, cut and broken bones, found in association with *Sinanthropus* remains and lithic artifacts from Choukoutien, by W. C. Pei. *Bull. Geol. Soc. China* 1932, XII, 105-8.

Prehistoric Britain in 1931 and 1932, by Christopher Hawkes. *Arch. Journ.*, 1933, LXXXIX, 275-97.

This is an attempt to publish an annual survey of periodical publications (not a review of digging, etc.). It is indispensable to those who wish to keep abreast of the times, and incidentally would save professional archaeologists from a number of enquiries, if it were read first by some of their correspondents. We hope that as many as possible will support the Royal Archaeological Institute, in whose Journal it will be published each year, by joining the Institute, or at least by subscribing.

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to the Journal. We understand that the compiler is *not* going to have a number of offprints made, at his own expense, for the benefit of those who are 'very interested in these things', but also like to get something for nothing. It is high time we stiffened our front a bit, and refused to let ourselves be exploited by camp-followers. (Royal Archaeological Institute, Lancaster House, St. James's, London, S.W.1).

The Prehistoric Geography of the Kharga Oasis, by G. Caton-Thompson and E. W. Gardner. *Geographical Journal*, November 1932.

This paper supplements in many particulars articles published in the *Geological Magazine*, *Man*, and *Antiquity*. It deals primarily with the prehistoric physiography of the area, and archaeological evidence is used for dating geological events. The general conclusion reached is that the area has experienced arid or semi-arid climatic conditions ever since Pleistocene times; and this being so the problem was to discover the source of prehistoric man's water-supply. The present water-supply is artesian and is derived from the water-bearing sandstone which underlies the Libyan Desert and is nowhere less than 80 metres from the surface. It is suggested that this supply was first tapped by the Persians; it is plainly impossible that it could have been reached by Palaeolithic man, and some other source had to be found. This has been discovered in the form of 'fossil wells', which now consist of mounds of deposit thrown up by springs which were gradually choked by wind-blown sand. The excavation of some of these mounds has produced ample evidence of their use from Acheulean times, when they first burst through the soil, till the Neolithic period, when they were being gradually choked up. Between the time when Neolithic man was driven from the oasis by lack of water, and the Persian and Roman period when the deep waters were exploited, Kharga appears to have been uninhabitable, and there are in fact no traces of human habitation.

Eskimo and Palaeolithic Art, by Miss F. de Laguna. *American Journal of Archaeology*, Oct.-Dec., 1932.

This is the first part of an article, to be continued in the next issue. It reviews the various theories of the derivation of the Eskimo race and culture from the Palaeolithic of Europe, which have been put forward by many writers, from Testut onwards. Miss de Laguna examines and compares the surviving art of the Upper Palaeolithic in Western Europe with Eskimo art of the present day and also of the ancient Eskimo cultures which have of late years been excavated in Greenland and Canada. She stresses the importance of Siberia as providing a necessary link in the chain, if chain there be, and it is much to be hoped that the results of recent excavations in Siberia and Central Russia will soon be made generally accessible. The comparison between the two sets of drawings, sculpture, etc., is made with great fairness, and the writer appears (at this stage of the inquiry) to retain an open mind on a possible connexion.

Skara Brae, Orkney: official guide by V. Gordon Childe. H.M.S.O. 1933. 6d.

Although published by the Stationery Office, the credit for producing this excellent guide is shared by the author and the Ancient Monuments Department.

NOTES AND NEWS

Excavations at Troy 1932 : report by Carl W. Blegen. *American Journal of Archaeology*, Oct.-Dec. 1932.

A preliminary report on the new excavations at Hissarlik begun in 1932 by the University of Cincinnati. The expedition obtained a concession from the Turkish Government to excavate, and had the great advantage of the presence and advice of Professor Dörpfeld, whose knowledge of the site extends over 50 years. The expedition had two main objects : (1) to make a fresh and thorough test of the stratification of the site in the light of the vast accessions to knowledge of Mediterranean archaeology since the original excavations ; (2) to make an exhaustive search for the prehistoric burials, of which none had yet been found. Two undug areas were chosen which it is hoped will give, when taken together, a complete sequence of the strata which make up the mound. During the first season the levels of the Roman period and of the ninth to the fifth cities of Schliemann and Dörpfeld's system were excavated. The examination of the stratification of these two sites will be continued during the present season, and the abundance of pottery coming to light promises to give a complete Trojan ceramic sequence.

The search for burials was carried out by the digging of some 80 exploratory trenches. The evidence so far obtained is inconclusive, but there appear to be considerable traces of incineration burial, though the bones, which are mostly in small fragments, are scattered about in no sort of order.

Les Industries à éclats du Paléolithique ancien : (1) Le Clactonien, by the Rev. Abbé Henri Breuil. *Préhistoire*, tome 1, fasc. II, 1932.

This, the first of a series of articles by the Abbé Breuil, proposes far-reaching changes in the traditional classification of Upper Palaeolithic cultures. That traditional classification began with an industry in which implements were made from flint cores, and which was labelled, not very happily, Chellean ; this was followed by the Acheulean, where the flakes struck from the cores were themselves also worked into implements, and finally by the Mousterian, where the use of flakes predominates and the flakes are struck off from nuclei which have been prepared, and the plane of fracture afterwards carefully retouched. It has been supposed that the Chellean industry corresponded with the last warm fauna, which gradually died out during the Acheulean ; and that the Mousterian corresponded with the last cold fauna.

The new classification here put forward lacks this pleasing simplicity, which is rendered unconvincing by, for instance, the association of flake-industries with a warm fauna at Montieres, Grimaldi and elsewhere, and the discovery of a flake-industry beneath several Acheulean layers at Barnfield Pit, Swanscombe. Readers are referred to the article itself, and especially to the diagram on p. 127 ; but in brief it may be said that its thesis is that core-industries and flake-industries are both found in each of the later interglacial periods, and further distinctions are drawn between those in which the flakes were struck off on an anvil, by a stone percussor, or by pieces of wood. The Abbé deals with the earliest of the flake-industries, called Clactonian, from Clacton-on-Sea, which has yielded one of the purest deposits of the industry, which he places in the 1st (Gunz-Mindel) interglaciation, and parallel to the Chellean industry which belongs to the same period.

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Cinq années de recherches archéologiques en Éthiopie, par R. P. Azaïs and R. Chambard ; 2 vols., Paris, 1931, 350 francs.

The publisher could not afford to send us such an expensive book for review purposes, so we cannot tell our readers what it is like. Those who have 350 francs to spare can get it and see for themselves.

The Pazirik burial of Altai ; written up by Eugene A. Golomshtok from Russian accounts. *Amer. Journ. of Arch.* Jan.-March 1933, xxxvii, 30-45.

A very rich burial in a Central Asiatic Kurgan—the wooden sarcophagus was perfectly preserved (fig. 4), and so also were remains of felt carpet, carved wood, leather. A curious feature was the reindeer-masks of the sacrificed horses.

Excavations at Has Hüyük, Southeast of Bohgaz Keui, by L. Delaport. *Arch. Anz.* 1932, part 1-2, cols. 230-3.

Beiträge zur chronologie der Lagasch-Periode und zum Sumerer-Problem, by Viktor Christian. *Archiv für Orientforschung* 1933, VIII (heft 4-5), 207-15.

A review of Dr Frankfort's book, *Archaeology and the Sumerian Problem*, Univ. Press, Chicago, 1932 (Or. Inst., Studies in Ancient Oriental Civilization, no. 4).

Excavations of the Harvard-Boston Expedition in Halfa Province, 1930-31, by N. F. Wheeler. *Sudan Notes and Records*, vol. xv, 1932.

During the season the expedition excavated the Egyptian Middle Kingdom fort of Shalfak at Sanas, about 35 miles south of Wady Halfa. Like other forts in the neighbourhood, it is built of mud-brick on a rocky height overlooking the river. It is believed to have formed part of a line of signalling stations which can now be carried almost down to the forts of the Second Cataract. The most interesting find was an inscribed stone from a quay at the neighbouring fort of Uronarti, mentioning a visit in the 19th year of his reign of Senwesert III on the return of his campaign in 'miserable Kush'. A photograph and a drawing of the inscription are given. This number also contains a note on the discovery of a Roman coin of about A.D. 350 at Sennar.

Citania e Sabroso, by Mario Cardozo. 1930.

An account of two famous Portuguese Iron Age *oppida*, excavated during the seventies of the last century by Dr Martins Sarmiento. The sites, which were occupied from at least the 6th century B.C. till the 3rd or 4th century of the present era, yielded plentiful remains of pottery, worked flints, bronze, etc. The fortifications and the houses were very well built of stone and considerable ruins of them remain. Illustrated, and there is a résumé of contents in French.

Akkadian and Cappadocian texts from Nuzi, by J. M. Meek. *Bulletin of American Schools of Oriental Research*. December 1932.

These tablets, which were discovered during the season 1930-31, have now been deciphered. By far the most interesting is a map (reproduced), which is by a long way the oldest map known. It is thought that it may represent part of northern Mesopotamia.

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LES FRAUDES EN ARCHÉOLOGIE PRÉHISTORIQUE. By A. VAYSON DE PRADENNE. Paris: Emile Nourry, 1932. pp. 676, 44 plates and 40 figs.

It must always be a matter of speculation whether that fabulous quality known alternatively as 'French Logic' or 'L'esprit gaulois' is the cause or the consequence of French national characteristics. M. de Pradenne makes this speculation even more hazardous by presenting to his readers as clear, impartial, concise and accurate a study of fraudulent deals in matters archaeological as could conceivably be desired. Remorselessly he takes a long series of once, and in some cases, still-famous swindles, and traces their history and consequences with a meticulous appreciation of the details of their development which would make the most notable of criminal lawyers envious. For he never loses the thread of the story even while repeating the arguments of supporters and opponents, the statements of the criminals and the pleas of their advocates.

Thus M. de Pradenne vindicates French logic, but, since the most alarming of the cases he deals with concern France, at the expense of French logic. For he dissects by the same methods the living bodies of argument which had been so logically built up by other Gallic logicians. He adopts in most cases a fine dramatic scheme in the framework of which he examines each story. 'Ambiance—début de la fraude—premiers soupçons—dénonciation—la controverse—fin de l'affaire'. With minor variations each story is told on these lines. At the end of it all the reader will feel fortified, depressed, alarmed, doubtful both of his own eyes and of the honesty of mankind, but ultimately grateful that there is always some good fairy who steps in and stops the nightmare. For this long tale of fraud is a tale of good and evil mixed in inextricable confusion. Was there ever a more sardonic tale than that of the jawbone of Moulin Quignon? the jawbone which gave to that charming scientist Boucher de Perthes just exactly the evidence for which he had been looking to prove the existence of Fossil Man. Brought to him by his trusted workmen from a pit, it not only convinced him of the correctness of all the hypotheses which he had propounded but it also convinced his opponents, and at last made the world safe for Fossil Man against the attacks of religious orthodoxy and infuriate fundamentalism. And all the while the jawbone was a fake, produced simply because, in his kindness of heart, Boucher de Perthes had offered too high a reward to the finder of any such relic. Even when Gallic enthusiasm had been damped by British commonsense, and the redoubtable opposition of Sir John Evans (who frankly admitted that nothing could have suited his own views more admirably than to accept the genuineness of the relic), aided by an examination on the spot by the acidulated Mr Keeping, had settled the matter beyond doubt, Boucher de Perthes still maintained the genuineness of the jawbone. In this he bears a striking family likeness to the Reinach brothers, who, after the actual maker of the tiara of Saitapharnes had explained before a committee how and when he made it, still carried on a guerilla rearguard action for authenticity. In effect this is *amour propre*, a quality with which all academic folk seem highly endowed. Indeed, as the author explains, age and status make men, even the most learned, almost

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impermeable by logic once they have publicly stated their views. The whole story of the tiara of Saitapharnes is told here, admirably documented and annotated with the most shrewd and witty notes. It seems almost inconceivable that, with such a story available to study, and with the older tale of the Moulin Quignon relic to help, the *Affaire Glozel* should ever have assumed the proportions which it attained. That some of the victims of the tiara should have also been the victims of Glozel, strange though it may be, serves but to underline the conclusion that *amour propre* does more to retard the growth of truth than any other obstacle.

In every fraud there is a forger, and the classification of forgers is as necessary a weapon for archaeologists as his pick and shovel. Most forgers are such for gain. Flint Jack (whose doings are here admirably documented) is the untutored forger who ultimately acquires skill. Rachoumowski, who made the Louvre tiara, was a highly skilled goldsmith. Between the one and the other the archaeologist will ultimately find the truth, for the untutored forger makes just those mistakes which science will immediately recognize, while the highly skilled artisan must borrow from somewhere the necessary knowledge that he requires, and those sources are never so recondite that they cannot be spotted.

But there is the rarer and more troublesome kind of forger—the mischievous and malicious person whose sole aim seems to be to create a humorous situation or to make things 'more difficult'. If he be an archaeologist—and the type forger-archaeologist is happily of extreme rarity—he may give endless trouble until his antics are shown up. The finds from the island of Riou, near Marseilles, were of this kind. Flint implements of undoubted genuineness and of Egyptian type were found in what was alleged to be a surface-deposit at the island. A connexion between Egypt and Europe by sea at this early date was to scientists unthinkable, but here they were faced by indubitable facts; against authentic facts no inherent improbability can avail. But it was soon discovered that the implements were patinated with what is known as a 'desert patination', due largely to wind-blown sand and characteristic of implements found in Egypt, and it was at once evident that the circumstances of their finding were suspect. In the end the author gives the solution, after some first-hand research among the documents and personalities concerned. I will not spoil the story by stating the dénouement. It must be read in the author's elegant and sarcastically tactful prose.

Strangest of all the frauds of the 'jester' type is that which concerns the finds from an estuary fort in the Clyde. Here it was a case of the excavator producing from a genuine site objects which had been put there by a crank simply to make it 'more exciting'. But so ludicrous to look at are the objects in question that one wonders that Scottish archaeologists wasted even a moment of thought over them.

The author reaches his highest level of criticism and description in the story of the Saitapharnes tiara. His footnotes deserve a particular study, so faithfully and brilliantly do they annotate the various developments in this ten years' wonder. Here is the standard fraud for all time, developing on normal lines, ultimately proved by irrefutable evidence as a fraud. The final report of Clermont-Ganneau is a model of its kind and the more astonishing in that it reveals powers of criticism of evidence and a capacity to analyze which, if applied at the outset, would have saved the Louvre from the ridicule which fell upon it. Most interesting of all is the way in which, by similar skill and judgment, Furtwängler's original declaration of fraud, which French archaeologists spurned, was ultimately proved right in almost every detail, even to an identification of the sources from which the forger had drawn his designs.

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One interesting conclusion is drawn by the author in the matter of forgeries in general, a conclusion all too often forgotten today. He points out how the archaeologist must depend entirely on his own resources—and he will ultimately be justified, even as Furtwängler was. The tendency to bring in the aid of non-archaeological experts is almost always useless, at best suspect. I cannot do better than give the author's own words: at one moment in the controversy the aid of expert Parisian goldsmiths was sought, and proved absolutely useless:—

' On voit par là que les hommes de l'art, non seulement n'ont pas aidé la vérité mais encore on failli l'entraver. Ce fait montre combien il est erroné de mettre sa confiance et son espoir pour des questions d'authenticité dans des "gens de métier". Les artisans fabricants d'objets modernes, connaissent bien leur technique actuelle mais sont facilement dérouterés des qu'on les sort de ce qu'ils ont toujours vu. Ils joignent souvent à cela une certaine suffisance que leur donne l'habitude de parler à des clients incompetents. Enfin ils n'ont pas de culture scientifique. Au total ils tranchent généralement à faux. Les connaissances techniques sont les plus utiles pour déceler la fraude—elles sont indispensables—mais il faut qu'elles aient été acquises par un archéologue doué de sens critique et étudiant au point de vue comparatif. Cependant à chaque affaire de fraude la presse et le public imaginent de faire trancher la question par un ouvrier '.

Here the author touches upon a matter of prime importance, which is still overlooked by the average archaeologist. It is the absence of trained critical powers which counts most. I have known of a sculptor who accepted as genuine the most preposterous forgery of a statue. He had technical knowledge but did not know how to apply it critically to work which was not his own.

Every archaeologist should read this book, if only as a warning. The reading of it has been to me an unadulterated pleasure, marred only by the rather large number of misprints and printer's errors.

STANLEY CASSON.

DIE ERFORSCHUNG DER SPÄTBRONZEZEIT, HALLSTATT- UND LATENE-ZEIT IN ENGLAND UND WALES, von 1914-1931. By CHRISTOPHER HAWKES. *Sonderabdruck aus dem XXI Bericht der Römisch-Germanischen Kommission*, 1932. pp. 86-175. Taff. 12-27, Abb. 1-60.

The recent and laudable policy of the distinguished body in whose name this publication is issued has been to collect for the use of German students first-class summaries of archaeological knowledge acquired in Europe since the outbreak of War. This has a reciprocal value: it furthers the true understanding of the ancient German race on the part of Germans themselves; it permits the compilers of the summary, and their non-German readers, to take stock. In this case, by a fortunate chance, the English material had been brilliantly summarized by Messrs Kendrick and Hawkes in their *Archæology in Britain* (1932), and further refined in the pamphlet prepared by them for the English Session of the Prehistoric Congress of 1932. Thus, the foresight which secured this fine account of recent work for the *Bericht* was rewarded by a particularly lucid description.

The dangers of such a summary are apparent to all. Drastic condensation tends to minimize and tempts to bridge the gaps in our knowledge. But, when that knowledge is moving so fast as we may proudly claim British prehistory to have moved in recent years, the dangers are entirely outweighed by the necessity of taking stock; and that is

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pre-eminently the point of view taken in this work, wherein the *Zusammenfassungen* have much positive and little negative fact, the author being rightly concerned with stating what we know rather than wherein we are yet ignorant. Bearing this in mind, there is relatively little to criticize and much to praise. The lucid text and the admirable illustrations, both in half-tone and line, are in the best traditions of the *Bericht*, and include many pictures which will be new to English readers.

To a northern Englishman, however, it may seem that not quite enough attention has been paid to that area. It is true that the evidence from this Highland zone is much scantier than that which the Lowlands have produced, this being due partly to the paucity of modern workers in prehistory and partly to the relatively thin distribution of the prehistoric population. Yet it has yielded rather more material than is recognized in this summary, and in forms entirely suitable for inclusion within it. Perhaps the most striking omission is Dr Raistrick's valuable summary, with distribution-maps, of Bronze Age finds in northern England, published in the *Yorkshire Archaeological Journal*, 1929. This work is, indeed, incomplete, because much field-work remains to be done; but it goes a great deal further than anything before it. The maps form a logical succession to the same author's more recent mapping of the Mesolithic culture in Northumbria (to use a convenient term), and show Bronze Age man thickly populating Eastern Yorkshire, and spreading in time much less thickly westwards and north-westwards, where Megalithic folk were already established in the Cumbrian area, by the York moraines, and the easy gate of the Airedale gap. The natural features of the zone impose themselves and give to the distribution a coherence which is not apparent in the more limited surveys hitherto available. To the more thickly populated zone belongs the manufactory of urns at Ross Links (*Arch. Aeliana*, ser. 4, VI, 197-8): while a movement in the other direction is attested by the 'encrusted urns' to the list (*Antiq. Journ.* VII), of which may now be added the Ryton (*Arch. Aeliana*, ser. 4, V, 22-25) and Lancashire (Fox, *Personality of Britain*, pl. 4) examples. Again, their fortifications are represented by Blue Crag (Northumberland), which produced corn-grinding instruments of all the primitive types (*Proc. Soc. Ant. Newcastle*, ser. 4, II, 23-4, 138-43). Here, indeed, the evidence is perhaps more precise than that from Eston Nab (North Riding), though the fortification is much smaller. For at Eston Nab at least two divisions exist in the fortress, one marked by a long burnt palisade, the other in the great rampart of wood and stone (among which a Bronze Age stone was reused). Indeed, it seems possible that the awaited appearance of the detailed report may enable us to distinguish two periods and thus to resolve the problem implicit in Mr Hawkes's note (159, p. 125) which finds the rampart at Eston earlier than the normal examples of this type of hill-fort. But lack of excavation leaves this fortification as isolated, and therefore as yet unrepresentative, as the Scarborough discoveries. It is impossible to say for how wide an area the latter stand, and, therefore, Dr Raistrick's maps, giving the general picture, are the more valuable.

Another point which concerns this distribution is the relative rarity in Cumbria of the lynched form of settlement distinguished by Elgee in Cleveland. The typical Cumbrian mountain villages* exhibit, right through from the late Bronze Age to the Roman period, small enclosures, little more than gardens or folds, but no lynchets. They are, in fact, less regular examples of the Blue Scar *Gehoftumzäunung*, and outside the

* Since writing this review the best group of them has been splendidly published by R. G. Collingwood, in *Cumb. and Westmorf. Arch. and Antiq. Soc. Trans.* XXXIII. I.A.R.

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enclosure there are no fields. Thus, it is a fundamental distinction between the Cumbrian and Yorkshire areas that in the uplands of the former settled agricultural holdings are sparse, the villages being rather those of herdsmen in small groups. Further, the Bronze Age here lasted a very long time. There must, however, have been other groups; and as a precursor of expansion towards the area may be noted the anthropoid-handled sword from Clotherholme by Ripon (*P.S.A. Lond.* xxvii, 214), matched by the rediscovery, this year, of the Grimston example. Nevertheless, this picture of Cumbria as an entity distinct from the Yorkshire area remains true down to Roman times, and is illustrated by such settlements as Lanthwaite Green (*Cumb. and Westmorl. Arch. and Antiq. Soc. Trans.*, ser. 2, xxiv, 119) discovered within the period under review, and many other earlier discoveries. This was, then, one of the social, if not racial, distinctions among the Brigantes, and explains why their Roman canton should be limited to Yorkshire, among less mobile folk.

In further connexion with the Roman Age, it may be remarked that if the cultural connexion between the Iceni and Parisii is sound, it explains the final action of Caratacus in flying to Cartimandua, and also the interest of the Brigantes in Boudicca, as noted by Tacitus. The definite division of that great tribe, or agglomeration of tribes, into pro-Roman and anti-Roman factions hardly justifies the star in Abb. 58. While the text of Ptolemy and the story of Cuchulain, as well as Dr Mahr, may be adduced in support of a north-British emigration to Ireland, a matter which may well be a parallel for the behaviour of Commius the Atrebat.

Outside of the northern area, this reviewer hardly ventures to comment. But two points of interest have struck him. The conveyance, or vehicle, burnt in the Lexden tumulus is not necessarily a chariot, for the iron bands ornamented with bronze decorative edging are not felloes or tyres, of which examples have not appeared in the find as a whole. Secondly, the Moel Hiraddug shield-boss is not linked by any of its commentators with the Gallic double-axe as figured on the Arch at Orange and in other early Roman reliefs. Yet that is what it is, complete to a representation, in conventionalized form, of the cord which bound it securely to its shaft.

I. A. RICHMOND.

CORINTH, volume IV, part 1: Decorated Architectural Terracottas. By IDA THALLON-HILL and LIDA SHAW KING. *Harvard University Press*, 1929. pp. xii, 120, 5 coloured plates and 48 illustrations. 5 dollars.

Mrs Van Buren in her *Fictile Greek Revetments in the Archaic Period* (1926) summarized the earlier material now fully published here. Her hope that the remains might be assigned to their various buildings is not realized; they are the mere smashed and jumbled 'fill' of Roman Corinth. In dating the archaic material Mrs Thallon-Hill—who incorporates the notes made originally by Miss King—is less definite than Mrs Van Buren, from whom, again, Mr Payne differs somewhat in ch. 17 of his *Neocorinthia*, published later than the present work, but presumably too soon to make use of it. In general Mr Payne would date the 6th century material somewhat later than Mrs Van Buren, while Mrs Hill regards a chronological arrangement as impossible. The earliest example of these so-called 'Megarian' revetments, reconstructible from fragmentary members, is dated by Mrs Van Buren to the very beginning of the 6th century, and by Mr Payne to the second quarter of it. Mrs Hill places it on one page in the 'early part', on another in the first half, of the century.

The book contains a bibliographical note, a discussion of the well-known part played by Corinth in the development of architectural terracottas, as illustrated at

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Corinth and elsewhere, an account of the material from Corinth arranged by kinds (antefixes, ridge-palmettes, simas, tiles and lateral acroteria) which would have been clearer had use been made of heavy type or marginal sub-divisions, and an inventory of some 700 fragments. In identifying the various examples of the revetment referred to above, I found the tiles were given as T41, 42, 43, 44, 50, 51, 145; but the inventory stops short at T144. By comparison with Van Buren, I surmise that the last is a slip for T45. And 'Pindar, *Olympia*' on p.5 is a slip for *Olympians*.

The illustrations, including Professor Duell's water-colours, are good, but often give no indication of scale.

Mrs Hill differs from Lattermann's interpretation of the Arsenal inscription, with which Mr Payne acquiesces. She does not think it can be interpreted as meaning 'combination-tiles'.

W. L. CUTTLE.

EXCAVATIONS AT TELL EN-NASBEH, 1926 and 1927: a preliminary report.

By W. F. Badé. SOME TOMBS OF TELL EN-NASBEH, discovered in 1929; a special report. By W. F. Badé. *Palestine Institute Publications*, 1798 *Scenic Avenue, Berkeley, California*, nos. 1-2, 1928. Each 5 dollars.

One of the great needs for the student of early prehistoric archaeology of Britain is a series of accurate records and detailed plans of the early burial caves of the Mediterranean area. It is therefore satisfactory to have the report of Professor Badé's examination of the tombs of Tell En-Nusbeh.

The first report contains the record of two tombs, nos. 5 and 6. The latter produced evidence of having been used over a long period—c. 3000-2500 B.C.—for the burial of over 75 persons of the same racial stock, the only undisturbed skeleton being an extended one. Many carnelian beads were found and one large barrel-shaped bead of gold. The excavator's conclusion was that the tomb had been rifled by the middle Bronze Age builders of the city wall.

The plan indicates a somewhat irregular and mutilated main chamber, which was approached through an antechamber at a higher level and led through a narrow entrance to a smaller end-chamber. Tomb no. 6 had a similar antechamber and its main chamber was still more mutilated.

The tombs recorded in the second report were better preserved and provided valuable data. No. 3 had 'a shallow forecourt chiselled out of the limestone and at its east end a low façade with its small portal whose upright door-stone was still in place. Immediately to the left of it, but in the north facing of the forecourt, was a smaller door-stone, rabbeted deeply into the rock'—as was also the principal door-stone.

The forecourt was filled with earth and the tomb therefore completely sealed, but it had been reused, for the upper layers of its contents consisted of Hellenistic vases, dating from 275-250 B.C. and beneath them Iron Age pottery of 900-850 B.C.

The chamber was roughly rectangular and had a central trench or 'storage pit' in one corner, also benches, as well as alcoves and smoked lamp-sockets. Professor Badé quotes with approval Mr Duncan Mackenzie's suggestion that corresponding benches in the similar tombs at Beth-Shemesh are representations of the divans of oriental houses.

Tomb no. 5 dated to c. 1000 B.C. or earlier; it had a general resemblance to no. 3 but had a flight of steps partly within the main chamber as in some of the Majorcan tombs, also a separate end-chamber of about half the size of the main one. It contained

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a great number of pots, including many lamps, also two scarabs, which at present cannot be precisely dated.

One more tomb, no. 4, of the Graeco-Roman period, illustrates the later development of the type. The main chamber, which retained the central pit, had no less than eight elongated side chambers opening from three sides at right angles; one of these more than twice the size of the others and provided with benches.

Several plates of sections and drawings of the pottery from the tombs are included in the illustrations.

Little or no light is thrown on the question whether the reuse which so frequently occurs was foreseen or intended by the original constructors of these tombs.

The constant features of the Mediterranean tombs illustrated in this group are the approach through a pit, which may have served as forecourt or antechamber, when the last was absent as a separate structural feature; the closed doorway, sealed by filling the pit with soil; the main chamber, usually provided with surrounding benches and sometimes by lamp sockets; and, on occasion, one or more side chambers, usually opening from the main chamber.

W. J. HEMP.

DIE MUNZEN VON SYRAKUS. By E. BOEHRINGER. Berlin: Walter de Gruyter 1929. pp. VIII, 297, 39 text-illustrations with portfolio of 32 collotype plates. 80 marks.

This corpus of the earlier coins of Syracuse has already a place in the bibliography of numismatics; to criticize it in detail is within the competence and opportunity only of specialists, but a more general public will welcome so important an addition to our knowledge of these coins, long famed and of great historical interest. This is one of the increasing number of works which make use of the study of die-sequences. The Greeks used separate dies for the obverse and reverse of coins, the former sunk in an anvil and thus able to withstand much usage, the latter engraved on a hammer-struck punch and so liable to speedy fracture. Obverses are thus found, in successive stages of wear, combined with two or more reverses, and the coins may be arranged in the order in which they were struck. Needless to say, the method is not infallible, nor can unbroken series always be secured (for we are dependent upon the coins which have survived), but a high degree of success is achieved, providing a 'scientific' criterion to support, or rebut, chronology based on style; which remains the only criterion where die-sequences are lacking. Die-sequences do not necessarily prove *absolute* chronology, for busy mints employed more than one anvil and punch simultaneously, and this creates such problems as largely form the material of this book.

Dr Boehringer describes and considers all coins from the earliest (issued under the *régime* of the landed aristocracy; here dated to c. 530 B.C.) to those preceding the signed pieces (c. 435 B.C.), thus including the period of great activity under Gelon, with the Demareteia; the six groups (divided into twenty-five series, with sub-divisions) correspond to the stylistic division into early, ripe and late archaic, strong, and early and ripe classical styles. The Demareteia fall within series XII e. The author picks his way skilfully through the maze; it will be remembered that the tetradrachms remain strictly faithful to the original types; obverse, a four-horse chariot, reverse, the head of Artemis-Arethusa; but show great variety of treatment and detail. The horses now step off with the near foot, now the off; they proceed now at a walk, now a gallop; their heads arrange and rearrange themselves. Variety is even more discernible in the reverses, and the hair is worn in many styles. The enlarged field of the Demareteia (decadrachms)

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gave full scope, and a crown of victory appears, with a (Carthaginian) lion in the exergue of the obverses, as later a sea-monster commemorates the battle of Cumae.

The tracing of the sequences and the arrangement of the series must be followed in detail to be appreciated. Isolated points of interest or controversy may be mentioned here: the mass-production of coins under Gelon (series VIII-XI), when a die was even borrowed from the Leontini mint; the ascription to the Demareteia-artist of the unique Brussels tetradrachm of Aetna; an apparent gap after the Demareteia series, when no tetradrachms were issued; the marking of the eye-lashes of series XIV (cp. the in-let lashes of, e.g., the Delphic Charioteer); the postulation of the discovery of a new hardening process for metal at about this time (the second quarter of the 5th century); sundry observations upon die-injuries and repairs, and on the use of 'hubs', i.e. positives from which the negative dies were made.

In addition to the description and catalogue, there are sections upon forgeries and barbaric imitations, upon technical, economic and other aspects of these coins. The discussion of the sea-monster (*ketos*) seems to seek too great particularization, at any rate for the early meaning of the word, which I take to have been quite generic. The identity of the reverse head is established, with a tentative suggestion that the priestesses of Artemis-Arethusa served as models, for it is observed that few of the models would have won prizes in a beauty competition—not that the priestesses were especially uncomely, but that the choice of models (if models there were), if free, would have been determined by some such method.

W. L. CUTTLE.

EVERYDAY THINGS IN CLASSICAL GREECE. By MARJORIE and C. H. B. QUENNELL. *Batsford*, 1932. pp. XII, 144, and 84 illustrations, map, etc. 8s.

This is the third, and last, volume of the authors' *Everyday Things in Ancient Greece*. It must be judged with its predecessors; by itself it hardly seems to justify its title, as I understand the term 'everyday things'. But in fact in certain respects it is just in those things that our present knowledge of classical Greece is less than that of other times and peoples: for example, the dearth of 5th century domestic sites. Yet the authors have been able to make pegs on which to hang a good deal of information about everyday things which supplements the earlier volumes.

The chapter on the buildings on the Acropolis and at Delphi has good remarks on the evil of mere slavish copying in architecture and on the Delphic oracle, 'not a pious fraud'. For towns Priene has to serve, with excursions into medicine and the theatre; for town-houses, Delos, with remarks on furniture, pottery, coinage and terracottas, and a lengthier account of Xenophon's *Oeconomicus*. The last chapter deals with war, especially the Peloponnesian War.

I fear that much zeal is supported by too little knowledge; in particular, desire to expose the evils of war has led to unhistorical treatment. For instance, 'always (Thucydides) had at the back of his mind the terrible ending which he was to write to the seventh book' (introduction, p. viii). Since he wrote of current events, and found it necessary to compose the 'second introduction' of Book V when the war restarted, this is not so, and when the war is represented as causing the destruction of Hellas, the authors surely forget that in this very book they have recourse to post-war Hellas for town-planning, house-plans, theatres, hospitals, Plato, Xenophon.

I have noticed misprints (Decelci, Potidae, Hegesa). The account of the origin of Tragedy is brief but bold. 'Actor' is not derived from the Greek ('a leader'), but

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from Latin. The style sometimes is uneasily jaunty, and twice a curious use of 'as well' occurs, leading to ambiguity ('As well that at first the athletes competing at Olympia wore girdles about their loins', p. 96 is not intended to be an argument for a cautious *Nachkultur*). And may I protest that Topsy just growed, and had not 'grown' (p. 49)?

Everyone knows and respects the 'Everyday Things' series: *ne supra crepidam*. . . .
W. L. CUTLER.

COROLLA ARCHAEOLOGICA. Principi Hereditario Regni Sueciae Gustavo Adolpho dedicata. Skrifter utgivna av Svenska Institutet i Rom, II (Acta Instituti Romani Regni Sueciae, II). Lund: Gleerup; London: Humphrey Milford, 1932. pp. 276, 43 text-figures, frontispiece and 30 plates. 31s 6d.

This fine volume from the Swedish Institute in Rome consists of papers by students of the School (pp. 1-144) and by those connected with the Swedish Near East Expedition. The joint publication is in honour of the Prince to whom the Institution owes much and who himself took part in the Expedition. The contributions are written in English, German, Italian or French.

In the first section, one of the most important articles (pp. 84-97) deals with the question discussed by Mr Carrington in *ANTIQUITY* (June 1933, pp. 133-52), the evolution of the later type of Roman tenement-house, and the stage which it had reached in Nero's day, when Rome was rebuilt after the great fire of A.D. 64. On the evidence of Tacitus and Suetonius, Dr Boethius, Director of the Institute and author of the article, concludes that the house built with brick-faced walls and carried on a stone framework now became popular in Rome, though invented before and indeed (as the author does not note) described by Vitruvius (II, 8, 17). It arose, he thinks, out of the practice of subletting the street-façades of the large town-houses. The whole is an interesting sketch of the New Rome then arising, and a wholesome reminder of how comparatively late was the growth of that Roman architecture whose strength has passed into legend.

Professor Martin Nilsson (pp. 132-139), deals with the almost contemporary development of the Triumphal Arch as a new architectural form, derived, as he believes, from large decorative statue-bases, placed across thoroughfares. This view has now the actual remains of the *Formix Fabianus* to support it, though such statue-bases are not represented by the *Tour Magne*, whose true nature was discussed by the reviewer in *ANTIQUITY* 1931, v, 347. Again, the problem of placing heavy statues upon city-gates unadapted structurally to receive them, as at Rimini, has its place in the story of the evolution.

Lars Fagerlind (pp. 118-139) treats the development of the Corinthian capital in Roman hands with skill and discrimination when discussing the Italian examples, showing how the fashion materially changed between the 2nd century B.C. and the 1st century A.D. But the logic of his discussion is somewhat marred by the assumption that Vitruvius was describing a style two generations older than his day, and by his dating of the South-Gallic caps a generation too late. Nevertheless, his paper is a useful vindication of the reliability that is coming to characterize the method he uses, and its conclusions will have to be taken into account by architectural students, most of whom have yet to learn that Roman decorative art was not stationary, despite the efforts of writers like Mrs Strong.

A. Andrén (pp. 98-117) discusses the architectural terracottas from Ardea, the Latin stronghold as old as Rome. They come from the acropolis-temple, decorated

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first in the late 6th or early 5th century B.C., and beautified afresh in the 4th century, when the place had become a Roman colony. When the town had been ruined by the Samnite wars and was neglected amid Rome's mighty expansion, poor repairs were carried out, replaced by better work actuated by antiquarian interest of the declining Republic.

A link between these architectural studies and those of more literary flavour is provided by Wijkström's article (pp. 17-30) on the four Temples of Piazza Argentina, in Rome. He attempts to connect the existing remains with the literature about this area, identifying the temples with those of porticus Minucia. One cannot call the attempt convincing. On the whole, it endeavours to particularize with material of too general application, and tries to do this before the last word has been said upon the structural side, or, indeed, before the definitive account has appeared. Lest this appear too sweeping, let it be said that the reviewer has summarized these points in the forthcoming *Journal of Roman Studies*, where *minutiae* are more in place.

Bengt Wall (pp. 31-54), dealing with the same group of monuments, takes a more cautious line in seeking to identify them with the same porticus. As he observes, further exploration and study are needed before the identification can be clinched, and he contents himself with a scholarly account of the evidence about the porticus Minucia, as known in literature on epigraphy and as amplified by commentators on those sources. If he reaches no original conclusion, his work has the pleasant flavour imparted by a fresh and original discussion.

E. Wistrand (pp. 55-63) and Å. Åkeström (pp. 72-83) respectively summarize present knowledge of the sources about *atria*, the public halls connected with markets and auctions about which too little is known in actuality, and about the *Lacus Curtius*, while G. Saeffund (pp. 64-71), the author of a brilliant monograph on the Republican Wall, discusses the site and possible remains of the Porta Mugonia. These remains, in the reviewer's opinion, do not necessarily belong to a gate. But excavation on the spot would rapidly prove the point.

More literary still are the studies by Danielsson (pp. 1-16) of the Renaissance inventor of ancient texts, Anninus of Viterbo, whose inventions are fortunately transparent; and the note by T. Kleberg (pp. 140-144) on a new consul of A.D. 182, Q. Tineius Rufus, and the cognomen Fausianus. These will not attract wide attention, but are scholarly pieces of work.

The section dealing with the Near East opens with a paper by Professor E. Gjerstad, on a 5th century B.C. palace at Yvni, in Cyprus. This deals with the affinities of the architectural features of the palace, bringing it into relation with both Greek and Anatolian influences. The article is written in English, but it is a misfortune that the Professor did not have his technical language revised by an English architect: 'runners and binders' can be easily understood as 'stretchers and headers'; but 'lying blocks' and 'raised blocks' are much less obviously blocks set lengthwise and blocks standing on their ends. This kind of pseudo-terminology makes the description of the wall-construction desperately hard to understand, especially for students who, like the reviewer, are not architects. The house is an interesting one in detail, with its primitive form of hypocaust for the sudatory, more ambitious in the later stages of its century of history. The analogies for construction connect its walling with the type that was current in Greece and Syria, where orthostats took the place of timber-framing as a weather-proof foundation for walls of sun-dried brick, while the masonry tradition in ashlar-faced walls also went back to wooden framing technique. Professor Gjerstad's discussion of these

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points is full and interesting. Valuable also is his discussion of the *livan* type of plan, and its association with the Etruscan triple-cella temple. But his treatment of the atrium and the roofed courtyard must be revised with the discoveries in the Casa del Chirurgo at Pompeii, which show that the earliest house had no impluvium, but a floor of beaten earth. It is, however, questionable whether a sufficiently precise distinction has been made between the orthostatic construction which arrives as a substitute for a genuine and old-established timber-technique (as in Greece) and that which derives, in timberless lands (like Assyria and the East) from the need to protect brick walls from weathering.

The sculptures from the very interesting temple-site at Soli-Holades in Cyprus are treated by A. Westholm (pp. 172-188). The fine head of Alexander is an attractive, vigorous work, and the head of Agrippina from the temple of Isis is worth note. But the student of religion, while noting the humanizing effect of the introduction of Agrippina to the pantheon, will be more interested in the odd cult-statues which that influence tended to oust. There is a plentiful collection of these.

E. Sjöqvist (pp. 189-207) deals with the excavation of an Iron Age cemetery at Styli, also in Cyprus, in which the Crown Prince took a personal hand. The tombs were dromos-tombs, and the type of pottery ran from Cypro-Geometric III to Cypro-Archaic II: the bodies were buried outstretched on their backs, without coffins, and with heads towards the door.

Professor Persson (pp. 208-15) discusses the late-Mycenaean inscription from Asine, reading it as a Greek hexameter dedication to Poseidon. This is sure to attract considerable attention, but criticism must be left to those more competent in the matter.

Natan Valmin (pp. 216-27) collects the evidence for the association of tholos-tombs with tumuli and stelae, and this is an interesting presentation of a convincing case.

K. Hanell (pp. 228-37) contributes a slight and unimportant article on the development of the plan of Greek temple-courts.

Professor Lennart Kjellberg (pp. 238-45) has an important article on the oldest of the famous Aeolic caps from Neandria, now in the Ottoman Museum. Meurer, working in Constantinople, has found the element uniting the volutes and the palm-leaf corona; this was a primitive bead-roll moulding, which gives the cap proportion and elegance. The author inclines to date it to the 6th century.

Heribert Seitz (pp. 246-69) discusses the Ephebe from Subiaco, hitherto variously identified as a Niobid or Ganymede, or an athlete. Acting upon a hint from the late Guy Dickins, he goes on to suggest that the subject was Lycaon beseeching Achilles, and presents an interesting case, which must be considered by experts in Hellenistic sculpture, of which he suggests this is a Hadrianic copy.

Finally, E. Wiken (pp. 270-76) deals with the position of Kerke in the Fayum.

I. A. RICHMOND.

VORBERICHT VON DER AKADEMIE DER WISSENSCHAFT IN WIEN, IN VERBINDUNG MIT DEM EGYPTISKA MUSEET IN STOCKHOLM, UNTERNOMMENE GRABUNG AUF DER NEOLITHISCHEN SIEDLUNG VON MERIMDE-BENISALAME. By HERMANN JUNKER and OSWALD MENGHIN. *Proceedings of the Akademie der Wissenschaft in Wien*, 3 February 1932. pp. 99, 14 text-figures and 8 plates.

It is refreshing to get an account of discoveries so quickly and in such detail. The work at Beni Salama during the season of 1932 has been as fruitful as that in preceding years. A great variety of objects of this interesting phase of the neolithic culture has

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been found, and our knowledge of it considerably enlarged. The site is an extensive one; but owing to the great care which has been exercised in its excavation only a small portion of it has so far been examined. It is to be hoped therefore that further work will solve some of the riddles and difficulties.

A matter of great interest is the presence of burials in the settlement. The original suggestion that these were deliberately placed with the face towards the family hearth does not seem to be borne out by the latest finds. The bodies have their heads mostly to the N, NW, or NE. A considerable proportion of them are immature, and it does not seem certain that it was the custom to make all burials in the village. It is just possible that a cemetery may yet be found in the neighbourhood.

The variety of pottery forms is surprising; they seem to indicate a connexion with European ideas rather than with those of the Badarians. We must remember however, that the monotonous series of bowls of the latter come from graves, and this may account for the difference to a great extent. If we had more knowledge of the rather nebulous Tasians in Middle Egypt, or if we had more pottery of the earliest Fayum culture we might find greater similarities, for the flint-work of the Fayum has a marked affinity with that of Beni Salama. It is curious to see objects at Beni Salama which were first thought to be unique paralleled in Upper Egypt. The saw-edged flint knife with a well-made notch in the base is exactly like a pair found recently in the Badari District at Matmar; and the human foot in pottery is the same as those under the red polished bowl from Khuzam near Luxor. This latter however is of Amratian date. GUY BRUNTON.

THE ALISHAR HUYÜK: seasons of 1928 and 1929, part I. By ERICH F. SCHMIDT. Season of 1927, part II. By H. H. VON DER OSTEN and ERICH F. SCHMIDT. *Oriental Institute Publications: University of Chicago Press, 1932. Pt. I, pp. XIX, 293, and XLVII plates, seven in colour. 72s.; pt. II, pp. XI, 134. 30s.*

The first of these volumes deals with the periods of Alishar I to Alishar IV, inclusive. Pottery, stone, bone and metal objects, and 'funeral customs' are all illustrated.

The chief importance of the book lies in its illustrations. There are quantities of good black and white drawings and numerous inferior photographs, nearly all germane to the subject. There are also some coloured plates, which are exceptionally bad, being obscure in outline and incorrect in colour. So far as the description of the excavation is concerned, the standard is not so high. No levels whatever are given, except under the phrases 'level I' or 'level II' etc., expressions which are scientifically valueless. The position of Alishar II in relation to Alishar III, is still unknown in America—an amazing piece of self-criticism. One of the most important periods dealt with is Alishar IV, a fact that makes it all the more regrettable that the type of paint employed on the pottery of that period is not described. It is, of course, matt. So far as the period of Alishar I is concerned, the Americans appear to have been badly puzzled by it. It is not an easy period to understand, but that is no reason for failing to know of the material found at Bos Eyuk. Nor is it any reason for failing to publish the characteristic shape of the pottery of that period.

What is not stated in the book is that Alishar I is a period which is parallel to Bos Eyuk, in so far as that latter site is known. It has no relation (so far as civilization is concerned) with the periods of Troy I or Yortan, and is completely unlike anything known in the Aegean. It is followed by Alishar II, a period of civilization strikingly different from its predecessor, being due to immigrants of Iranian type who ultimately spread to Greece about 2400 B.C. (see Goldman's *Eutresis*). Next, a new type of people (also oriental

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in origin) destroyed the Alishar II civilization, and spread to the Aegean to form there the culture of the Middle Helladic period. Still later (perhaps c. 1500 B.C.) a fourth people appear, decorating their pottery with compass-drawn concentric circles in matt paint. The relation of these with the 'proto-geometric' folk of the Aegean is probable, but as yet ill-defined. The Alishar IV people are of unknown origin, but are certainly not from the west. So much, to the present writer's mind, is obvious from the finds, though none of this is mentioned by the excavators. These results destroy utterly any theory of a 'centre of diffusion' in Asia Minor, and suggest further exploration to the east, beyond the Taurus mountains. For even when parallels between Asia Minor and the Aegean can be noted, they are due to migrants pressing westward. Who the peoples of Alishar II, III and IV were we can only know by going eastward, to Armenia, and, perhaps, beyond.

All those who wish to discover what led to the highest civilization of the world have felt well aware of the great responsibility undertaken by Dr Breasted. They can only feel grateful to him for having found wonderful material for study, but, at the same time, they must regret that expensive work at a magnificent site should still leave the prehistory of Asia Minor as a subject more or less confined to theory. Undoubtedly most archaeologists have waited on this excavation in hope, and with confidence in American capacity. It is not too much to say that those who have hoped and waited will experience, on reading this report, the most bitter disappointment.

The report on the season of 1927 deals with 'funeral customs', small objects (metal, bone, stone, etc.), and coins, found at Alishar and bought locally. All are illustrated. Since no stratification is given any true value it may have appears to be confined to the coins, which at least are datable, if unimportant. They are described by Mr Newell in an adequate way. Unfortunately, similar treatment is not accorded to the other objects discussed. Figurines, seals and carved bone boxes (hollow tubes) are all badly described and unstratified. Moreover, they are, most of them, unusually badly photographed. Such is the character of the book that the reader, unable to check statements, is not likely to accept any observation which is of importance, for fear of later discovery. With this reservation it may be noted that 'bored hammer axes occur in Alishar II' and 'pot and cist graves occur in Alishar I . . . cist graves only in Alishar II'.

A description of the colour of the obsidian found at Alishar would have been of infinitely more value than a monochrome photograph. The latter is all that has yet been vouchsafed.

No archaeologist can afford to ignore any of the books yet written about Alishar. It is a most important site,—one of the most important yet dug,—from the point of view of those who wish to correlate prehistoric events in different parts of the Near East. It is a pity therefore, that all the books on this site are so bad. THEODORE BURTON BROWN.

THE ARDAGH CHALICE. A description of the ministril chalice found at Ardagh in county Limerick in the year 1868; with a note on its traditional conformity to the Holy Grail of legend and story. By L. S. GOGAN, Academy of Christian Art of Ireland. pp. 94 and 18 illustrations. Browne and Nolan, Dublin and London, 1932. 5s.

This little book consists of a minute study of the craftsmanship and associations of the magnificent silver chalice which was found, with other objects, near Ardagh. It is prefaced by notes on chalices and the material of which they were made, and followed by some remarks on the Holy Grail.

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The author, after an interesting discussion, fixes A.D. 1000 as the most likely date for the manufacture of the chalice. The materials employed in its construction include gold, silver, brass, bronze, copper, lead, iron, crystal, amber, garnet, enamel, amber paste and blue glass, and give some idea of the resources of the workshop of a master craftsman at the end of what has been called the Dark Ages. The design is worthy of the materials, and the skill of the workman of both, for the chalice consists of 354 different parts, and the technique includes filigree work, two kinds of enamelling, chasing, engraving and jewel setting, besides welding.

This exhaustive study of one of the finest works of the Middle Ages is fully illustrated, and contains much incidental information on medieval lore and art. DINA P. DOBSON.

GLASTONBURY ABBEY BEFORE THE CONQUEST. A translation by H. F. SCOTT STOKES, formerly a scholar of the two Colleges of Our Lady of Winchester, of William of Malmesbury 'On the antiquity of the Church of Glastonbury'. *Glastonbury: Central Somerset Gazette. pp. 71 and plan. 11.*

Besides tracing the early history of the settlement at Glastonbury, William of Malmesbury enumerated the grants conferred on it by various kings from British times to the Norman Conquest. The amount of land held is amazing, and Mr Stokes' map shows its distribution as far as North Somerset is concerned. By the 12th century the outstanding sanctity of the place was still fully recognized. As William says, 'the antiquity of the place and the great number of Saints there have made it so holy that one would hardly dare to spend the night in watching there, and he who by day should spit would be aware of his shocking profanity and burn with shame. No man has brought so much as a hawk or a horse within the adjoining cemetery and gone away without hurt to himself and his possessions. Those who were to suffer the ordeal by fire or by water have all, so far as living memory goes (with one exception), rejoiced at their escape after going there to pray for it'. At the same time, the abbey, with its exclusive privileges, must have been a thorn in the side of the bishops of Wells, who were excluded from entering it or its possessions. It is interesting to see that Britons were still regarded as distinct from Saxons—'this is the origin of the fable commonly told by the fable-telling Britons and their bards, that an absurd fairy called Morganis brought the wounded Arthur to the Isle of Avalon to be healed of his wounds. And when the wounds are healed the King will come back in majesty and right to rule over the Britons as formerly (they say). And so they await his coming to this day, as the Jews await the coming of their Messiah, and they surpass the Jews themselves in their fatuity and infidelity and in their vain imaginings'.

The translation is pleasant and racy, and those who love Glastonbury will be grateful to Mr Stokes for helping them to learn something of the history of the abbey.

DINA PORTWAY DOBSON.

VIERTER VORLÄUFIGER BERICHT ÜBER DIE VON DER NOTGEMEINSCHAFT DER DEUTSCHEN WISSENSCHAFT IN URUK UNTERNOMMENEN AUSGRABUNGEN. By ARNOLD NÖLDEKE, E. HEINRICH, H. LENZEN, A. v. HALLER. (Reprinted from *Abhandlungen d. preuss. Akad. d. Wissenschaften*, Jg. 1932, phil. hist. Kl., 6). Berlin, 1932. 14.50 RM.

The most impressive experience of a recent visit to Iraq was a descent of the deep shaft dug by the German excavators at Warka, the biblical Erech. From the ground level of the earliest monumental building yet found in Mesopotamia, you wind down

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60 feet to the alluvial bottom of the land of Sumer. On still marshy ground the first settlers had made a sort of platform of reeds, laid criss-cross in regular strata, to dwell on. Above the reed bed, 5 m. thick, the walls of the shaft bristle with relics, providing a concrete summary of Mesopotamian prehistory from the first moment the land was habitable till its inhabitants had accumulated the wealth and leisure to erect monumental temples and devise a system of writing and numeral notation. The pottery from the shaft is here described very fully by von Haller.

At the bottom lay the fine painted ware already familiar from al 'Ubaid, including the same sauce-boat type and associated already with imported obsidian. Already, however, in the second stratum (but the excavators numbered their strata from the top downwards, 1 being Archaic Sumerian) appear sherds of new fabrics first identified in Mesopotamia at this site; the new fabrics oust the painted ware altogether by stratum 6 (XIII). The fabrics in question are monochrome and owe their aesthetic effect to surface treatment, slips and burnish. One is red, others grey. Among the latter two varieties must probably be distinguished though the distinction is not made in the present publication. One fabric with a burnished black slip reminds one of Yortan pottery and is presumably a carboniferous ware, owing its colour to carbon; the other is more probably ferruginous and grey because of the reduction of the iron oxides in the clay by the process described classically by Forsdyke in connexion with the Minyan ware of Greece. Analysis would be desirable to settle the point. The red and grey wares seem to denote a break with the normal Mesopotamian tradition and might according to Frankfort have been introduced by Armenoids from the north. Moreover they are common to Mesopotamia, India and Anau and may belong to a complex to which the potter's wheel and oven and presumably also wheeled vehicles may also belong. None of these speculations find place in the report, whereas Heinrich emphasizes the general continuity throughout the prehistoric periods. In any case the red and grey wares are relatively rare, the bulk of the pottery found with them being coarse and pale but related in form to that of the lower levels.

The 'foreign wares' last sporadically into stratum 14 (V), but are virtually absent in 16 (II/III) which should correspond to the Jemdet Nasr period as known from Ur and Kish. The appropriate polychrome pottery is, however, practically unrepresented, and the layer is so dated because of the form of the bricks and of the script.

The excavations at Erech are memorable not only because they have revealed a completely new phase of Babylonian civilization and the first stages in the development of Sumerian writing and religious architecture, but also because the excavators after each campaign have promptly issued a perfectly objective but thoroughly adequate account of their discoveries illustrated by a sufficiency of figures and plans which suffer if anything from excess of detail. Their results are thus available for the assistance of, and analysis by, other excavators and researchers. Is it too much to demand that this practice, initiated long ago by Sir Arthur Evans in Crete, should be imposed upon other excavators in the Near East? Without it progress must be slow, synthesis is impossible and valuable evidence may be ignored and destroyed.

V. GORDON CHILDE.

TARA: a pagan sanctuary of ancient Ireland. By R. A. S. MACALISTER. *Charles Scribner's Sons*, 1931. pp. 208, and 16 illustrations. 3 dollars.

Professor Macalister's previous study of Tara was published in the *Proceedings of the Royal Irish Academy* for 1919. To the archaeological material there is unfortunately little to add, though aerial photography, while apparently leading to no new discoveries,

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now provides several clear and useful plans. Moreover, the account is entirely rewritten, with some additional material and certain speculations omitted, and is made accessible to a wider public.

There is little enough about the Hill of Tara today to indicate its fame in early Ireland, but its grassy mounds have this in common with so many prehistoric sites; they command extensive views over the surrounding plains, and the word *Tara*, in its Irish form, is said to mean 'a place which commands a prospect'. In chapter 1, which occupies nearly half the book, we have descriptions of the extant remains and topography of the hill, following the guidance of *Dindsenchus*, a compilation of folklore in which the relevant material must have been written, in the opinion of Dr Macalister, at Tara. The chapter includes a photograph and descriptions of some remarkable rock-cut trenches discovered during the disastrous search for the Ark of the Covenant conducted some years ago by misguided followers of a certain religious faith. The remaining five chapters are concerned with the historical and legendary accounts of Tara in its origin, splendour and decline. The author claims a Bronze Age foundation for the site, and though it must be admitted that the evidence is not conclusive, many archaeologists will be inclined to agree, and all to hope that proof will be established by excavation. Much of the substance of these chapters is ethnographical in character and some of Dr Macalister's interpretations must be considered conjectural. He has correlated incidents in Irish legend with the myths of primitive man in many parts of the world, and has performed a valuable service in giving new life to names and tales that constant repetition had made frankly tedious to the inquirer into the evolution of early Ireland. With the decline of paganism Tara soon lost its religious importance, and it was little more than a name when, in the 9th century, the Northmen founded Dublin not far away, in the same 'metropolitan' region of the island. Throughout, the author's virile style and reasoned descriptions compel attention to a somewhat difficult subject. E. ESTYN EVANS.

DIE BECHERKULTUR IN DEN NIEDERLANDEN. By DR F. C. BURSCHE. Leiden: E. J. Brill, 1933. pp. 85, 41 figures and 6 plates. Price not stated.

In this work, which represents a doctoral dissertation at Marburg, we have a welcome account of the Beaker-culture in the Netherlands enriched by the author's own researches. If there is one fault that we have to find it is the entire absence of any map. This omission is especially serious for the many foreigners who will certainly wish to read the book. We do not wish to imply that the author should have treated his subject differently, but we feel that his arguments would in some cases have made a more direct appeal if illustrated by maps. In any case a key-map to sites is essential in a work of such general interest. In other respects the work is well produced, the barrow plans and sections being especially clear.

The first section of the book is devoted to a description of the different forms of grave associated with the Beaker people in the Netherlands, illustrated by the author's excavations carried out for the most part in Gelderland. Bursch rightly stresses the importance of this line of enquiry and deplores its relative backwardness in other lands, though without making due allowance for the favourable soil conditions of his own country. Fundamentally he distinguishes two types of barrow with wooden structure: (1) the barrows with circular palisades or lines of posts (*palisaden- or pfostenhügel*), and (2) cupola barrows (*kuppelgrab*) with a circular chamber built up of horizontally disposed logs, a type from which he does not distinguish separately the bee-hive (*bienenkorb*) type of some authors. In the northern province van Giffen's excavations

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have revealed a number of beakers in megalithic tombs, and Bursch supports the view that the *palisaden-* and *pfostenhügel*, which are especially typical of this area, are to be ascribed to megalithic influence (p. 62). We may mention here an interesting case of horse-burial in a *kuppelgrab* at Garderen, Gelderland, which also contained beaker inhumations; the horse was provided with a miniature cupola of its own within the main chamber (p. 31).

Turning in his second section to grave-goods, Bursch distinguishes two main classes of beaker, these with a smooth profile (*s-formig* or *geschweifte*) and those with marked definition of neck and body (*glocken*); the latter are further divisible into two groups, the true Veluwer type and the cruder version with a less defined profile, not always distinguishable from the *geschweifte* class except for the zoned arrangement of its decoration. Of these forms the most interesting, as a peculiarly Dutch form and local to a single province, is the Veluwer type, low and broad with sharply defined and almost vertical neck and zoned ornament obtained by a stamp (*stempeltechnik*)*. Both its form and the metopic arrangement of decoration on the shoulder have led Bursch to ascribe this type ultimately to the influence of Megalithic pottery on the periphery of its distribution in Holland, while its confined distribution indicates a date subsequent to the first incoming of beakers and their spread to Britain. In addition to the beaker types Bursch notices the large vessels, known as *glockenurnen*, which have frequently been found with megalithic pottery as well as with beakers, and may yet be recognized in our own country.

There are in Holland two main centres of Beaker-culture, the northern and the province of Veluwe with which the western and southern regions go fairly closely. Thus, whereas in the north, palisade and post-graves, and beakers with smooth profile predominate, in Veluwe cupola-graves and bell-beakers are dominant, and above all it may be said that while in the north it is the Megalithic, in the south it is the Beaker-culture that is of greatest importance. However, as Bursch points out, it would be a mistake to overstress these differences, since in spite of them the Beaker-culture of Holland retains a certain unity. Though it is true that the thick-budded Nordic cell is found exclusively with the *geschweifte becher*, there is no general clear distinction as between the grave goods associated with the different types of beaker, nor indeed do the grave-types conform closely to any ceramic division.

Of previous workers Holwerda and Remouchamps regarded both the main groups of Dutch beakers as contemporary, whereas Van Giffen, Aberg and Stampfuss classed the smooth-profiled beakers as Neolithic and the bell-beakers as *Æneolithic*. Between these two schools Bursch steers a middle course with a tendency to support the former; while admitting the priority of the *geschweifte becher* he maintains strongly that the two classes are closely allied. The conclusion that the *glockenbecher* arrived in Holland later certainly seems justified by the evidence, and it is interesting to note from the tables that metal objects (other than gold) were found in Holland on six occasions with *glockenbecher* but on no single occasion with *geschweifte becher*.

It is of special interest to British archaeologists to note that Bursch distinguishes two main classes of beaker pottery in Holland, which correspond to some extent with our own classes B and A + C. Once again, as Bursch points out, the fact that we have in Britain no examples of the Veluwer type of bell-beaker indicates that the beaker-cultures reached our shores relatively early, representing as it were a prolongation of the

* Bursch rightly relegates to the past the idea of decoration by a notched wheel (p. 40).

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beaker movements into Holland. Finally we may draw attention to fragments of an overhanging-rim cinerary urn of English type found in the neighbourhood of Hilversum.
J. G. D. CLARK.

BULLETIN OF THE AMERICAN SCHOOLS OF ORIENTAL RESEARCH
(JERUSALEM AND BAGHDAD), Number 50, April 1933. Issued quarterly and sent to all contributors and subscribers of \$1.00 and upwards. *Edited by* PROF. W. F. ALBRIGHT, Johns Hopkins Univ., Baltimore, Md. *European agents:* J. C. Hinrichs'sche Buchhandlung, Leipzig, C.1.

The jubilee number contains, like its predecessors, much of lively interest. The most important contribution is a translation and discussion of parts of the Ras Shamra epic, by the Editor (see *ANTIQUITY*, v, 405-413). The composition is now dated on linguistic grounds to between 1700 and 1500 B.C. and the tablets themselves cannot on archaeological evidence be later than about 1400 B.C.

A reconnoitring expedition in Transjordan (December 1932) discovered near Kilwa 'on the sides of a hard sandstone hill . . . carved figures of animals, mostly of the ibex type. . . . "An outline of five holes had been punched in the rock, and then the sculptor had proceeded to chisel out the lines of the animal, working from right to left in diagonal lines . . . A flint chisel was probably used"'. There was no datable evidence, but the Editor suggests comparison with the frescoes of Teleilat el-Ghassûl in the Jordan valley 'which belong to the Neolithic of the second half of the fourth millennium (see *Bulletin*, no. 48, pp. 10-13)', and with the similar frescoes found by Dr Herzfeld at the Neolithic village near Persepolis. We might add the instance from near Lake Gokcha (Sevang) in Armenia (see *ANTIQUITY*, vi, 480) where ibexes are also represented. From this it seems clear that, at a date provisionally fixed at 4500 to 4000 B.C. the northern parts of Arabia and the adjacent uplands were roamed over by hunters who lived mainly upon the ibex and other game which must then have abounded there. Perhaps we may also associate them in Transjordan with the rich flint workshop sites so common east of Amman. It was doubtless these hunters who, some of them, were driven by desiccation and game-scarcity to settle in the fertile crescent of the valleys of Mesopotamia, Elam and India, where they developed the world's earliest civilization. The change of life from roaming to settlement must have been spread over a long period. We shall not know much more about its details until more excavations have been made in the caves and early villages of Iran.
O.G.S.C.

NAGA-ED-DËR: part III. A provincial cemetery of the Pyramid Age. By GEORGE A. REISNER. *University of California Publications; Egyptian Archaeology*, vol. VI. Oxford University Press, 1933. pp. 386, 56 plates, 3 maps, 435 text-figures.

Naga-ed-Dër is situated on the west bank of the Nile near Girga, almost opposite Abydos and exactly opposite the Third Dynasty site of Bêt Khallâf. In two previous volumes, *Naga-ed-Dër* pts. I and II, Dr Reisner has described three cemeteries of Dynasties I-III found at this place. The present volume deals with a fourth cemetery which was the burial ground of one of the same communities in the succeeding period of Dynasties I-VI.

In an earlier number of *ANTIQUITY* (March 1933), I have expressed my opinion that the primary object of an excavator's report should be not the production of a work of belles lettres, but simply and solely a most exhaustive and complete record of everything

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that he has found in the form of inventories, tables and lists, together with a brief summary of the conclusions to which they lead. *Naga-ed-Dér* corresponds precisely to my definition; it is the fulfilment of the field-worker's prayer. In it is everything which the Egyptian archaeologist can ask for; it leaves no question of any kind in regard to the site unanswered, and its information is conveyed in a form which admits of complete verification and control at every step. There is all the more reason to be grateful for this inasmuch as the cemetery was by no means rich in striking or beautiful objects. In comparison with many other sites that he has worked Naga-ed-Dér must have seemed to Dr Reisner rather a poor place; and it is infinitely to his credit that he has succeeded in making of it an archaeological document of great importance. In his skilled hands it becomes the instrument for tracing the whole development of provincial architectural art and industry during a most difficult and intricate period of transition, between the archaic and the better known historic periods. Of the immense industry of the excavator, his almost religious devotion to the smallest minutiae of detail, and his determination to win every grain of information that can be sifted from his mass of material every page of this volume gives incessant evidence. His methods in the field have never been excelled, and it is sufficient to say that they are adequately interpreted by his methods of publication. Finally the inferences which he feels justified in drawing, soberly and with moderation, from his methodical digest of the facts, are of real interest and mark distinct progress in the building up of the great fabric of Egyptian archaeology.

The essential core of the book is to be found in pp. 193-364, which give the descriptive list of the tombs arranged in numerical order. With an economy of space made possible by his exact system of notation and classification, the author conveys in each case, within a few lines, a complete account of the topography, burial custom and architecture of every tomb, as well as a description of every object found in it. No less than 435 very neat and clear drawings, often containing a number of objects, are inserted in this part of the text so appropriately as to make the reading very easy and agreeable. A long series of admirable photographs of tombs and objects in the 56 full-page plates at the end of the volume completes this primary exposition of the material.

Preceding the description of the tombs, though logically based upon it, are three long chapters devoted to a discussion of the types of graves and burials, the objects found and—in a very brief summary—the chronology and history of the cemetery. These chapters are not literary in form; that is not their intention and could not be. They contain a schematic digest of the material in all its forms and combinations, so arranged as to answer any questions that may be asked. The author's own conclusions, in very brief and succinct phraseology, are given after each series of tabulations. These chapters certainly cannot be read like a novel, but I cannot endorse even the author's own slight disparagement of them as a 'cumbrous marshalling of figures'; the admirable clarity of the arrangement and the conspicuous excellence of the printing render them perfectly easy to study. There is scarcely a column or a percentage that could have been safely omitted, even though they may not be all needed simultaneously and at every reading; for *Naga-ed-Dér* will be read more than once or twice by everyone who is studying this period. And every field-archaeologist, whatever his province, may greatly profit by studying the sheer technique of these methods.

For his general conclusions Dr Reisner has enriched his own material by a collation of the results obtained by others on neighbouring or contemporary sites, especially Abydos, Bêt Khallâf, Mahasnâ, Hu and Denderêh. When he has added the results of these to his own work at Gizeh and in Nubia he is in a position to draw a

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pretty complete picture of the general evolution of custom and art in Upper Egypt from the earliest times to the end of the Sixth Dynasty. I quote in full a very brief summary from p. 185 which the general archaeologist may be glad to transfer to his own notebooks.

'The series of archaeological groups which took their source in the Neolithic culture of the Early Pre-Dynastic period may be conveniently distinguished as follows:—

- (a) Early Predynastic or Neolithic group.
- (b) Middle Predynastic or Early Copper group.
- (c) Late Predynastic group; practical use of metal.
- (d) Dyn. 0 to the reign of King Zer; practical use of metals; writing; first period of intensive manufacture of stone vessels; beginning of sculpture (statuettes, figures and small reliefs); united monarchy.
- (e) King Zer to accession of Khasekhemuwy; culmination of the Early Dynastic period; second period of stone vessels; continued development of all arts and crafts.
- (f) King Khasekhemuwy to accession of Sneferuw; third period of stone vessels (period of degeneration); beginning of wheel-made pottery; first period of stone architecture; temples of Zoser at Step Pyramid.
- (g) Dyn. IV; second period of stone architecture (large limestone blocks and granite); the building of the royal pyramids at Medûm (?), Dashûr, Giza and Abu Roash; culmination of statuary and relief.
- (h) Dyn. V-VI; impoverished royal family; third period of architecture (spread of technical knowledge of quarrying and construction in stone); spread of sculpture in all its forms; introduction of new corpus of stone vessels and new pottery forms; end of the first union of Upper and Lower Egypt and the first period of cultural development, followed immediately by a complete breakdown of the administration and of the arts and crafts.

Dr Reisner is making steady progress in publishing the results of his tremendous labours in the Nile Valley during the past 33 years; another monumental book is announced as being actually in the press. When his great primary volumes have all been completed—or even before—there is no doubt that the public would give a very warm welcome to some small popular books in which he could give free rein to that gift for description, of which signs often peep out, almost in spite of himself, even in his most serious writings.

DAVID RANDALL-MACIVER.

THE STORIE OF THE LOWER BOROWES OF MERTHYRMAWR. By JOHN STRADLING (1598-1601). Edited by HENRY JOHN RANDALL and WILLIAM REES. Introduction and Notes by H. J. RANDALL. pp. XII, 199, with 2 maps. South Wales and Monmouthshire Record Society, Publication no. 1, 1932. Annual subscription to the Society, 21s.

It is the pleasant duty of the reviewer of this book to congratulate South Wales and Monmouthshire upon the formation of its Record Society and to welcome the Society's first publication. It is however a matter of general regret that the Society should lose, almost at its inception, the services of its distinguished and erudite President, through the death of Sir Joseph Bradney.

The choice of the Society's first volume is a particularly happy one. This manuscript, which gives the history of litigation to prove titles to the manor of Merthyr Mawr (mis-spelt throughout Introduction and Notes as *Merthyrmaur*) and the sub-manor of Candleston, throws much light upon the social history of Glamorgan. So much

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research is indeed necessary into the history of the county that it is gratifying to the social historian to know that, coincident with the formation of this Society, there was formed a committee to arrange for the publication of a History of Glamorgan.

The history of Glamorgan is the history of two cultures—one the native Welsh culture and the other an exotic culture, that of the feudal, and manorial, system which links it with the general history of the English Plain. While it is true that the intrusion of this culture has metamorphosed much of the life of Glamorgan it would be incorrect to suppose that it obliterated the native culture or even endangered it seriously. Politically, the intruders assumed control but the Welsh language and culture remained in strength in the Vale of Glamorgan down to recent times. The process of extinction began with the influx in the (comparatively recent) industrial period and has been checked to some degree by the resurgence of national sentiment in the post-war years.

This intrusive culture in Glamorgan has been particularly fortunate in its historians. To a distinguished list of names which includes those of Mathews, Clark, and de Gray Birch must now be added the names of Mr H. J. Randall and Dr William Rees. The Introduction and Notes to this volume show Mr Randall, in this case, as a scholar of culture and eminence in this particular field and no remarks by the present reviewer will be necessary to prove that the editing of this text is a remarkable achievement. Note after note testifies to Mr Randall's thoroughness.

But there is another aspect to which I am constrained to refer at some length. Under the present scheme of things, the Record Society will do full justice to the history of the exotic culture in Glamorgan, as this volume proves admirably. But the same volume shows that the Society has no editor competent to deal with the history of the native culture with the same scholarly thoroughness. No Record Society—and no History of Glamorgan—can fulfil its function and deal justly with history unless both cultures are given their right and proper place. In the late Sir Joseph Bradney, Monmouthshire had an historian endowed with a knowledge of the history of both cultures. Glamorgan has none. Is it too much to hope that the Record Society will invite on to its Editorial Board a scholar who can fill this gap? I make the same suggestion to the *History of Glamorgan* committee.

A reference to some *lacunae* in the present volume will justify these statements. When the late Chancellor Fisher has published in English (*Arch. Camb.* 1928, p. 369) a philological note on the *Mawr* of Merthyr Mawr, the editor discusses the origin of the place-name giving Fisher's explanation, but in other cases (pp. 135, 141) he 'gladly deposes [the interpretation] to the philologists' as if the philology of Welsh place-names were particularly difficult. The interpretation of *Cauntleton* however is given more than a page and one must agree with Professor Gruffydd (*Y Llenor*, xi, p. 192) that the explanation of the place-name (p. 164) is incorrect. The Cantelow family did not, as Gruffydd points out, take its name from Candleston any more than the Bonvill family took its name from Bonvilston. The reverse is the case: *-ton* is a suffix added regularly to a personal name already existing.

The reference to Professor Gruffydd leads me to refer to another point which is given scant justice in the Notes. The text refers to 'a couple of herehautes . . . John Gamage gent and Mericke David rhymer' and in the same context to 'William Basset of Bewper'. The editor supplies a useful note concerning Basset but concerning the 'heralds' he writes: 'I cannot find any certain reference to either of the two "herehautes" immortalized in this passage'. 'Yet', writes Professor Gruffydd, 'Cadrawd or Dafydd Morganwg or indeed scores of Glamorgan Welshmen who are now living,

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could tell him much about "Mericke David"—for this is the famous Meurig Dafydd from Llanisen, a collection of whose works in his own hand will be found in the Llanover B5 MSS: these were composed between 1580 and 1595. (See G. J. Williams's *Iolo Morganteg*, p. 109).

These are not the only instances which could be adduced to prove the inadequate treatment of the history of the native culture, and one cannot over-emphasize the fact that an intimate acquaintance with the Welsh language and with Welsh cultural history is essential for the very important work involved in editing the Society's publications. The Society should ensure that in its remaining publications such criticisms as are made here are rendered impossible.

The volume also includes interesting documents relating to coal-mining in the Lordship of Kilvey and an important list of Papists in Monmouthshire in 1678, all edited by Dr Rees.

IORWERTH C. PEATE.

ARKTISKE HELLERISTNINGER I NORD NORGE. By GUTORM GJESSING.

Oslo: H. Aschehoug & Co., 1932. 15 KR.

Two distinct groups of prehistoric rock-engravings have long been known in Scandinavia. The later of these seems in part to date back well into the Bronze Age; the other is somewhat more ancient. While evidence has been adduced to prove that in time it cannot be older than the Neolithic period elsewhere—examples of the drawings have been found carved on rocks stated by the geologists to have been below sea level at any earlier date—it has long been considered probable that culturally speaking it is to be assigned to the Arctic culture. The Arctic culture, in part at any rate, seems to have had its root in the Mesolithic cultures which occupied the southern parts of Scandinavia until ousted by the various newcomers who formed there the Neolithic civilization. This latter, however, seems to have had but a limited distribution in the country, and elsewhere in the hinterland the older cultures survived and continued to evolve on their own. It is thought probable that it was folk belonging to these cultures who made the earlier drawings.

The rock-engravings belonging to this older series have been found at a number of sites along the Norwegian coast and occasionally, where the mountain barrier declines, as far inland as areas now in Sweden. The present volume deals with a number of sites in Norway, far to the north. Two series of engravings are recognized, an earlier comprising only animals, and showing a more or less naturalistic technique of execution, and a later where designs and patterns appear. These are thought to date to the Bronze Age, the former only belonging truly to the Arctic culture.

The volume is well got up. There is a short account given of the topography of the finds, followed by a brief description of the methods used in making the carvings, and in conclusion there are some notes on chronology, etc. At the end of the volume there are no less than 54 full page plates—some in half-tone—illustrating the rock-engravings under review.

Anyone interested in such matters will have, of course, to take full account of this work, which is in the true sense of the word a monograph on the subject.

M. C. BURKITT.

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CORRIGENDA, VOLUME VII

- page 69, line 3, for words omitted see p. 215, lines 12-13
 „ 264, „ 28, the reference to plate VII should have been inserted on p. 265,
 line 9, after 'youths'
 „ 357, „ 29, for Eshunna read Eshnunna
 Plate I, facing p. 296, underline, for Greenford read Greenfield
 See also page 228 for other corrections



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